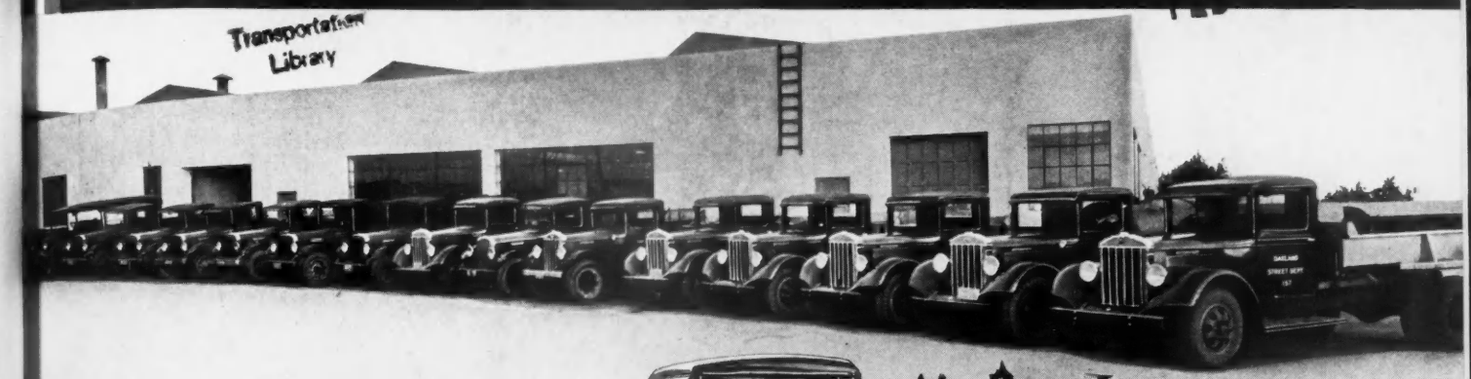
COMMERCIAL CAR JOURNAL

FEBRUARY 1935



Illustrated: Fifteen of a fleet of seventeen Reo trucks operated by Street Department, Oakland, California. Other city departments are also Reo-equipped.

Reo Speedwagons range from ½ to 4-6 tons, tractor-trailer units with correct load distribution and maximum payload capacity. Prices range from $495 up for chassis f.o.b. Lansing, plus tax.

Myers Magazine Chassis Lubrication standard on 2-5 and 4-6 ton models; available at slight extra cost on other models.

REO

Speedwagons and Trucks

Built and sold to Precision Standards. Use the Reo Performance Gauge in selecting your next truck.

"SMALLER COST PER MILE — LESS TROUBLE THAN ANY OTHER MAKE OF TRUCK"

In a few words, the above statement sums up the opinion of Oakland, California, street department officials as to the performance of Reo trucks over a period of twelve years. Oakland's city garage purchased its first Reo back in 1922—has continued adding Reo trucks until seventeen are now in service. ***Six of the last seven trucks purchased have been Reos!*** Garage officials find that Reos stay in service, day in and day out, without breakdowns or costly repairs. There has never been a case of a cracked or broken frame in the entire period of Reo ownership. Ruggedness, long-life and low-cost service are typical of Reo performance under all conditions—as hundreds of municipalities and fleet owners have discovered. See your nearest Reo dealer for an analysis of your truck problems. There is no obligation.

•

A LOT MORE TRUCK VALUE FOR JUST A LITTLE MORE MONEY THAN THE LOWEST!

REO MOTOR CAR COMPANY, LANSING, MICHIGAN

GMC

THE . TRUCK . OF . VALUE

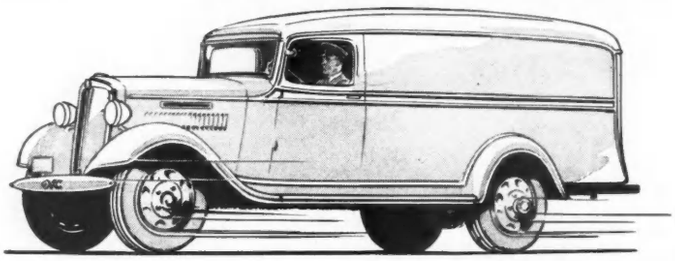
47

Cost-Reducing Features

-far more than other trucks

in the

1½-2 ton field



HERE'S the many-feature quality truck. Here's the truck that thousands of the country's shrewdest business men are selecting for a number of very definite, very practical reasons.

Seasoned truck buyers know that initial price is but a small part of truck cost—that operating and upkeep costs are far more important in judging truck value. The truck that does more work at lower cost, that requires less upkeep and that out-lasts is naturally the one they want.

Consider the many features of this GMC 1½-2 ton truck and you will realize why it out-performs and out-earns. On 47 counts—every one of them important and 10 of them exclusive—the GMC *is a more pronounced value.* It excels with latest type Lockheed hydraulic brakes, economical centrifuse brake drums, unusually large brake linings, greater horsepower, greater sustained torque, and full-floating axle with straddle-mounted pinion, to cite but a few of its superiorities.

Small wonder the General Motors Truck Company, the world's largest manufacturer of commercial vehicles exclusively, offers it as the truck of value, the truck that returns to the owner far more in work done and profits earned.

See this 1½-2 ton worker and earner. Judge its value in your own sound way. Or if your hauling needs call for trucks or trailers of greater capacity, look first to the modern General Motors Truck line for downright value. Capacities range from 1½ to 22 tons.

Revolutionary Dual-Performance Axle in 2-3 ton GMC

This new advanced truck feature provides a high-high gear (5.14 to 1) for fast movement on the level at economical engine speed and a low-high gear (7.15 to 1) which assures improved performance with heavy loads on hills or where the going is hard.

A TYPICAL VALUE FACT

One of the exclusive quality features of the GMC 1½-2 ton truck that reflects itself in more work done and more profit earned is Greater Payload Capacity. *Compared with one leading competitive truck, for instance, it has 10½% more, compared with another 15% and compared with still another 36%. And remember that is but one of 47 important advantages.*

GENERAL MOTORS TRUCKS & TRAILERS

1½-22 TONS

GENERAL MOTORS TRUCK CO. **Time Payments Available Through Our Own Y.M.A.C.** **PONTIAC, MICHIGAN**

COMMERCIAL CAR JOURNAL

with which is combined Operation & Maintenance

Reg. U. S. Pat. Off.

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Keep 'em willing to

turn in lower costs per mile

YOUR TRUCKS are willing to serve you efficiently and economically. Encourage them by giving them fuels and lubricants that have the spirit and ability to help.

Operating costs per mile and maintenance costs per vehicle are the two expenses that show whether there's profit or loss in your fleet. Texaco has cut both of these expenses for many of the country's largest fleet operators.

***Fire-Chief* Gasoline, Texaco Motor Oil, Marfak, Thuban, all have a vital part in**

TEXACO tested

REFINERY TESTED FOR UNIFORMITY . .

Vol. XLVIII No. 6 COMMERCIAL CAR JOURNAL FEBRUARY, 1935

The Overload

Odd Items and Comments—Not All Odd—Garaged in This Spot to Entertain, Amuse and/or Amaze You

Citation for No. 383

OUR first duty this month is to pin a medal on a truck driver employed in the fleet of the Rainey-Wood Coke Co., West Conshohocken, Pa. He performed a courtesy that deserves to be recorded. On Saturday afternoon, Feb. 2, the editor of Commercial Car Journal took the wheel of his car. Living out in the country, he found the roads banked with the snows of the winter's heaviest fall. He drove cautiously because he had just got over an illness that laid him up for a week. Approaching a big coal truck he signalled for the right of way and got it. But in passing he edged over a little too far to the right. Both wheels on the left side were in the snow and in spite of all he could do his car kept moving deeper into the banked snow until it was stuck fast. There he was—snow all around, no overshoes, and a mile to the nearest telephone. A relapse stared him in the face; and so did his little daughter, who just couldn't believe that her father—*her* father, of all persons—had got himself into a stupid fix.

And His Boss, Too

BUT help was at hand. The driver of the coal truck had seen the entire incident in his rear-view mirror and had stopped. He hopped out of his cab, came back and surveyed the situation. Without being asked to help he said: "I'll back up, hook to you with a tire chain and pull you out." He did just that and in five minutes car and truck were on their way. But not before your editor had taken his employee number—383—and learned that his name was Allwein. He's a credit to the industry. And so is his boss, because drivers reflect the spirit of their employer.

Congratulations, Colonel

FROM now on Leonard V. Newton, who is in charge of the vast fleet operations of the Byllesby Engineering & Management Corp., rates the title of "Colonel" from his civilian friends in the industry. Colonel Newton has his commission right from Ruby Lafoon, governor of Kentucky and commanding general of the select army of Kentucky Colonels. Mae West is a "colonel," too, and in order to properly envy Colonel Newton we'd like to know if Mae has a standing invitation for her fellow colonels to "c'mup 'n' see" her sometime.

Hips, Hips Hooray!

SPEAKING of La West, automotive engineers who know their geometry, and admire *her* anatomy, will subscribe to Mae's theorem that "A curve is the loveliest distance between two points."

Capsule Biography

FOR an all-around transportation man, we give you Adrian Beers—manufacturer, seller and operator. Holland is his home and it was our pleasure to meet him in New York during the automobile show. Mr. Beers sells a lot of vehicles of his own manufacture, but when he begins talking impressive figures you know he's referring to the Diamond T's with which he is flooding the already well-flooded Holland, if we can believe our grammar school geographies. Mr. Beers has the exclusive franchise for Diamond T in Holland. He has been decorated for his progressive transportation activities. Temperamentally he isn't Dutch, he's American. He radiates activity of the go-getter kind, and oozes good nature. He's a believer in advertising, and a glance at some of his sales promotion pieces shows that he doesn't let the tulips grow under his feet. He loves American cigars and would walk two miles for a glass of good beer. He's had to walk farther than that for it in the U. S. (Eh, A.B.?)

Let's Boom Bacon

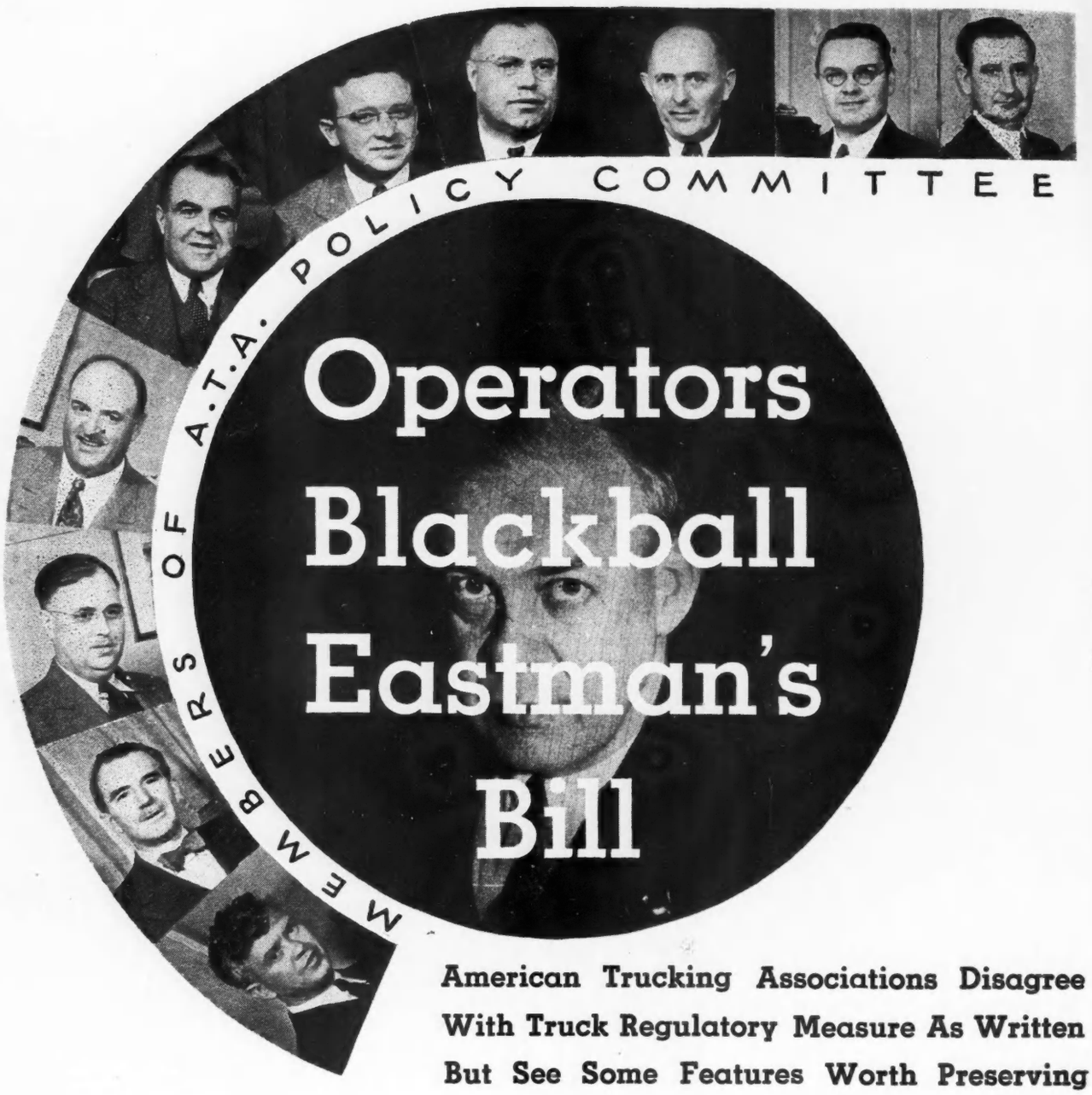
FLEET men are probably aware that there is a measure before Congress which would compel them and other motorists to use a blend of 10 per cent agricultural alcohol in all motor fuel. The proposal is offered as one means of helping the farmers out of their depression. It takes ridicule to make a screwy idea stand out in all its screwiness, and so fleet men will chortle over the suggestion made by a friend of motorists that so long as we are blending things to help the farmer, why not pass a law to make every person blend two slices of bacon with his breakfast every morning to use up waste hog production? To he—ll with those weaklings who'd get indigestion from the bacon, and which is what powerplants would get from the blended fuel.

Break a Habit

IT'S going to take a long time for you to accustom yourself but you've got to stop using the term "N.A.C.C. Rated Horsepower." To be correct you've got to say "A.M.A. Rated Horsepower" because the National Automobile Chamber of Commerce is no more. It's now the Automobile Manufacturers' Association. There was a time when the industry had to learn to say "N.A.C.C. Rated Horsepower." That's because originally it was called the "A.L.A.M. Rated Horsepower," the abbreviation standing for the Selden-patented Association of Licensed Automobile Manufacturers.

Greeks! - - - a Word

LAST month we asked for a better word than "diversion" as used in the expression "diversion of highway funds," which seems to be the chief diversion of legislatures now in session. Suggested substitutes were "taxjacking" and "taxateering." Ideas must be scarce because G. L. Busian, of Chicago, was the only one to come through. He suggested "misfunding." Who else has a suggestion that may win him undying fame.



Operators Blackball Eastman's Bill

American Trucking Associations Disagree With Truck Regulatory Measure As Written But See Some Features Worth Preserving

DOWN in the Jefferson Room of Washington's famous Mayflower Hotel, recently, the air was blue with tobacco smoke. Perhaps the atmosphere was tinged somewhat by the spirits of some 40 truck operators who had gathered together, at the call of the American Trucking Associations, to consider the Eastman Motor Carrier Bill. The powwow lasted two days and two nights, and when it was finally over, Mr. Eastman's proposals bore only a slight resemblance to the bill he had submitted to Congress.

In these days, when the trucking industry is trying to stabilize itself through some form of regulation, any plan that promises better times is apt to be embraced without sufficient consideration being given to it. There is much loose talk about Federal regulation, but it is doubtful that many of those who use the term really know what it means.

Analysis of the Eastman Bill, H.R. 5262, really gave these operators, members of the Policy Committee of the American Trucking Associations, a firsthand intimate, and somewhat disappointing, picture of what Interstate Commerce Commission control of interstate trucking would be.

The fact that the committee refrained from endorsing the Eastman bill, after its prolonged discussion, may indicate that it was not prepared, at this stage of the game, to go along with the Federal Coordinator to the full letter of the law. If a vote had been taken as expressing the committee's stand, it is probable that the association would have been committed to opposing the bill at hearings in Congress.

OFTENTIMES, regulatory laws are written by folks who know only casually the subject they are attempting to regulate. Mr. Eastman is one of the country's leading transportation experts and has made, through his extensive staff, a detailed study of the trucking industry. Yet, from the truck operators' point of view his bill lacks much. It contains certain liberal pro-

visions—more liberal than those contained in previous bills of this nature submitted to Congress—but, on the whole, it appears to have been written largely from the railroad point of view. Only a searching study, such as was made by this committee, could reveal all the numerous defects and shortcomings—again, from the truck operators' point of view—as were evident from the free-for-all discussion indulged in by the keen representatives of the industry on the policy committee.

First, let us look at some of the provisions of the bill that characterize it as "liberal." It proposes a classification or grouping of motor carriers, for the purposes of regulation, according to the nature of the services performed. While it does not specifically so state, it is understood that Mr. Eastman at least has in mind a gradation of control best suited to the type of operation. In that respect, he has broken away from the old proposals; namely, that one type of regulation—railroad regulation—should be applied to all forms of transportation. In other words, while the regular route common carrier might be subject to the full rigors of regulation, the dump truck operator, the milk hauler, the furniture mover, the gasoline transporter, and other types of haulage might be regulated only to the extent that the regulation of such services would be in the public interest.

ANOTHER "liberal provision" is the grandfather clause. Heretofore, in other bills, existing operators had to prove convenience and necessity in order to obtain a certificate or a permit. Mr. Eastman proposes that all operators in business in 1934 and in continuous service since then to the time of the effective date of the act, automatically be given a certificate or a permit.

In the Rayburn bill, hearings on which were held in the 73rd Congress, dual operation, that is, the holding of a certificate and a permit at the same time was prohibited, "unless for special cause shown" the commission "*in an exceptional case* shall find such . . . consistent with the public interest."

Senator Wheeler (Mont.) who introduced Eastman's regulatory bill in the U. S. Senate "by request"

Representative Huddleston (Ala.) who introduced Eastman's bill in the House of Representatives

The new bill eliminates the phrase "in an exceptional case."

Liberality is also shown in the sections governing the filing of rates which eliminate the necessity of initial filing and remove the rigors of those sections from existing schedules at the time of the effective date for both common and contract carriers.

Realizing the tremendous undertaking in bringing the trucking industry under Federal control, the effective date of the act is prescribed with some latitude. It might become effective July 1, 1935; on the other hand, if more time is needed to put the regulatory machinery into shape, the effective date could be extended to Jan. 1, 1936.

Briefly, those are the chief innovations suggested in Mr. Eastman's regulatory bill.

IN another bill, H.R. 5365, the Eastman proposals provided for the reorganization of the Interstate Commerce Commission, increasing its membership to 16, and departmentalizing its activity so as to give a division of three commissioners virtual control over highway transport regulation. There would be other divisions of other types of agencies. The chairman of each, with an over-riding chairman, would form a sort of control board, which would consider only matters of policy and questions where conflict between two agencies arises. This bill also would empower the Federal Coordinator of Transportation to become Administrator of the Transportation Codes. This latter bill met with the almost unanimous disapproval of the members of the Interstate Commerce Commission. They see no reason why the membership of the commission should be increased; they see no justification in splitting their body into divisions to consider trucking, waterway, air-way, or pipe line problems. They are opposed to the superimposition over their authority of the will and direction of the Federal Coordinator. Whether President Roosevelt will go for such a plan remains to be

(TURN TO PAGE 50, PLEASE)

MACY'S DEVELOPS PERMANENT

Standards For Driver Selection

BY USING MENTAL ENGINEERING

Having Set Up the Standards, It Uses Them As a Yardstick to Measure Applicants and Pick "Ideal Drivers" for Its 400-Truck Fleet

THE present high standard of "safe driving," in the Macy fleet, is the direct result of many sound principles and practices established since 1927. when the first major investigation was made as to the proper selection and training of drivers. At that time it was found that 15 per cent of our drivers were causing 70 per cent of the accidents. We were directly challenged by this finding, particularly as to the characteristics in this small group of men, which made them accident prone.

It was believed that through psychiatric and psychological inquiry it was possible to determine some of these causes and subsequently: (1) To eliminate certain accident makers of the fleet. (2) To apply corrective measures to the men retained. Our findings also would help us to be guided in the selection of new material as proper selection is a primary requisite to the later phases of driver training, both in its initial and post graduate stages. The post graduate stage of driver training is really adequate supervision, backed by sound personnel practices and incentive programs.

Believing that the most important cause of accidents is found in the mental and physical make-up of the individual driver, our attention was directed towards consideration of the differences between drivers in their susceptibility and proneness to accidents. Fifteen per cent of the drivers, who caused most of the accidents, had a natural lack of intelligence or had unpleasant circumstances surrounding their home life, social or financial. Most of the difficulty was traced to the latter causes, and led to the conclusion that the best drivers were those that were free from mental worry, but not to the point of where they were naturally reckless.

The methods by which these facts were determined, and the establishment of certain standards in driver selection, were done through a series of interviews and tests.

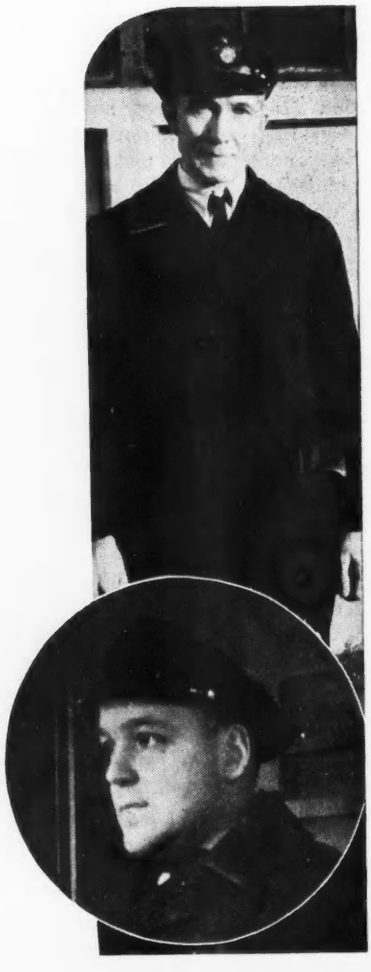
WE sought individuals free from mental or physical handicaps and capable of operating trucks safely. In order to do this properly our problem approach was as follows:

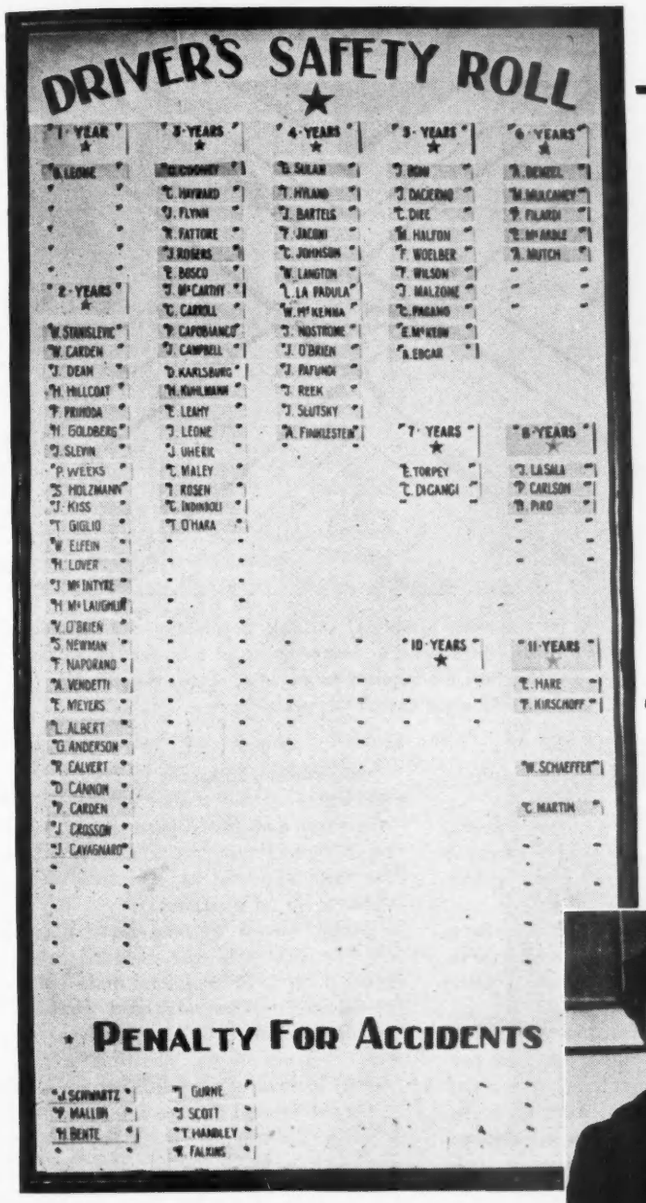
(A) A study of the mental and physical processes involved in operating a truck under ordinary road conditions.

(B) The development of psychological and physical tests for measuring these processes in any given operator.

By the application of these tests we were able to determine:

A. Certain standards which would enable us to detect the weaknesses in the old drivers.





Macy's honor roll prominently displayed with plenty of space for the "duncers" at the bottom. Two of the 11-year safety men are shown in the circles—F. Kirschoff (left) and W. Schaeffer (right). Maurice Kynock (standing left) hasn't had an accident since November, 1918, which makes him number one man with 16 years of safe driving. Lawrence Conway (standing right), driving since 1923, has had one minor accident (not his fault) in 1928

WHAT kind of a truck driver do you think is the most desirable?

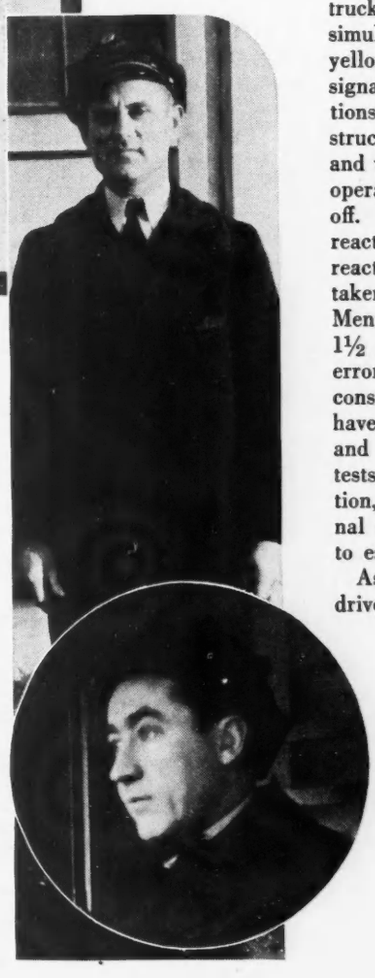
R. H. Macy & Co., New York City's largest department store, operating over 400 vehicles, gives you the answer—tells you how to spot the right kind of driver. Macy conducted a series of psychological tests (call it "mental engineering," if you wish) among its drivers with the result that a standard for driver selection was established which drivers themselves might refer to as the "third degree," but which Macy's no-accident records prove to be a blessing to safety.

Macy's standard specifications for driver selection cover age, schooling, physical condition, special abilities and personality.

Here's the story of how Macy established that standard—and what it is.

B. Whether or not there were clinical constitutional sources of accidents which could not be reached through a psychological test.

There are a number of psychological tests given, including the Porteus Maze test of performance ability; the Otis General Intelligence test to test knowledge; the Hopkins Motor Coordination test to determine coordination of eye and hand; the judgment of distance test; the Ishihara's test for color blindness; standard chart for testing vision, and finally our own driver's test. Briefly, the driver's test consisted of a machine fitted up to resemble an actual truck cab with controls, etc., and a simulus board with lights, red, green. yellow, detour, slow, oncoming car, signals, etc., representing road conditions. The driver was properly instructed as to the purpose of the test, and was supposed to perform a certain operation as each light flashed on and off. The machine registered the time reaction which showed an average time reaction of .54 seconds, and which was taken as the standard at that time. Men whose reaction time was above 1½ seconds, or who made numerous errors at the machine controls, were considered poor risks. Although we have discontinued the Porteus Maze and the Hopkins Motor Coordination tests as superfluous for present operation, they had their places in the original selection process which enable us to establish driver selection standards.



As has been previously stated, poor driver performance can generally be traced to the human failings. This was borne out through the psychiatric study which showed that 60 per cent of the men, whose records indicated a positive accident tendency, were suffering from marked personality disorders. Of 71 men studied 18 showed no particular tendency toward accidents; about 53 showed a definite accident proneness and were repeaters.

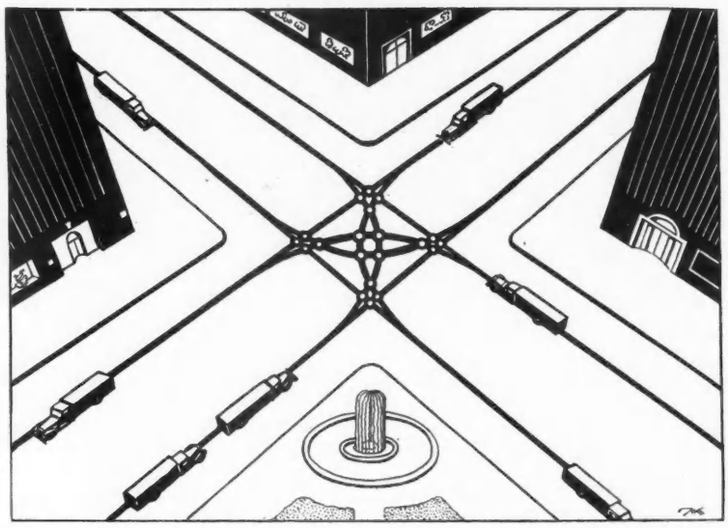
Analysis showed 65 per cent

were under 25 years of age and contributed 75 per cent of the accidents in the "studied group." A study of the age distribution of the entire force of drivers showed that 55 per cent, 23 years or under, contributed 73 per cent of all the fleet accidents. In comparing this fact with the results of the special group study, it was determined that age undoubtedly is a contributing factor in accident causation. Because of this we did not employ drivers as such under 25 years of age. Today we employ helpers and train them for driving over a long period.

The great body of the men—85 per cent—had a grammar school education

In the matter of intelligence, it was found that 68 per cent, or a little better than two-thirds of the men, had average or dull average intelligence and were the desirable drivers. Those under dull average ratings were not desirable, and those of superior intelligence were not satisfied to remain on the job—day-dreaming easily ensued.

In the group of drivers studied, it was found that 70 per cent of the frequent cases could be classified by psychiatric examination as personality problems. Some of these drivers had physical defects and disorders; some had intellectual inferiorities; some had personality disturbances, complexes of one kind or another.



Macy's management has made a study of accident possibilities and determined that at an intersection there are 20 danger spots at any one of which an accident may occur. Drivers are required to acquaint themselves with this fact, take extra caution at intersections

THE knowledge gained from these psychology tests resulted in the forming of standard qualifications for selecting drivers. These qualifications were turned over to the employment department to be used as a guide in hiring men. Qualifications drawn for our employment department were as follows:

AGE—25 to 35 years.

SCHOOLING—public school graduate.

PHYSICAL CONDITION — good health, good eyesight, freedom from special physical restrictions in the movement of arms, legs, hands, feet, ability to lift and carry loads, endurance, freedom from conditions that make one susceptible to climatic changes.

SPECIAL ABILITIES — normal color test, fair in accurance, fair in speed, fair in arithemtic, good in driving test.

PERSONALITY—active, alert, stable, free from personality disorders, well integrated, good attitude, interest in job.

SPECIAL—mild introvert, free from day dreaming, the motor type of personality whose responses are quick and accurate, pleasant and courteous, interest in routine and details, cooperative, likes and takes responsibility well, amenable to discipline, liking for outdoor work, ability to work without supervision, slight supervisory ability, effective contacts.

THE second field of our attack on the problem of safe driving was the development of a training program. A motor school was established for the training of those found fit for driving. Men were taught to drive the Macy way, which means driving with certain considerations foremost in mind. Men in charge of the school served as instructors, and investigators, and their reports on a man are generally taken for final approval or rejection of his application as a driver.

Motor school training lasts 3 days. On the first day the helper reviews general types of accidents and obvious causes, as well as ways and means of avoiding them. He also receives general instruction in handling record sheets, in loading and delivery.

On the second day he is taken out in a truck, the type of which depends on the service he is going into, and is given instructions in how to signal, when, how to shift, braking, etc.

On the third day he receives a road test. He takes a 1½ or 2½-ton truck through city streets where different conditions are to be met. Particular attention is paid to his clutch work, shifting, braking, methods of signaling, approach to intersections and backing up on levels and on inclines. Two factors considered vital in safe driving are speed regulation and the placing of the truck in the proper lane for making turns.

Helpers who satisfy these requirements are allowed to take out a truck and run off a load, to see how they drive and also to determine their ability to handle deliveries and collections. During peak periods they are permitted to handle a truck if previous records are good. Helpers rated highly are continued under motor school observation and are allowed to take part time driving jobs. The older driver is often

(TURN TO PAGE 78, PLEASE)

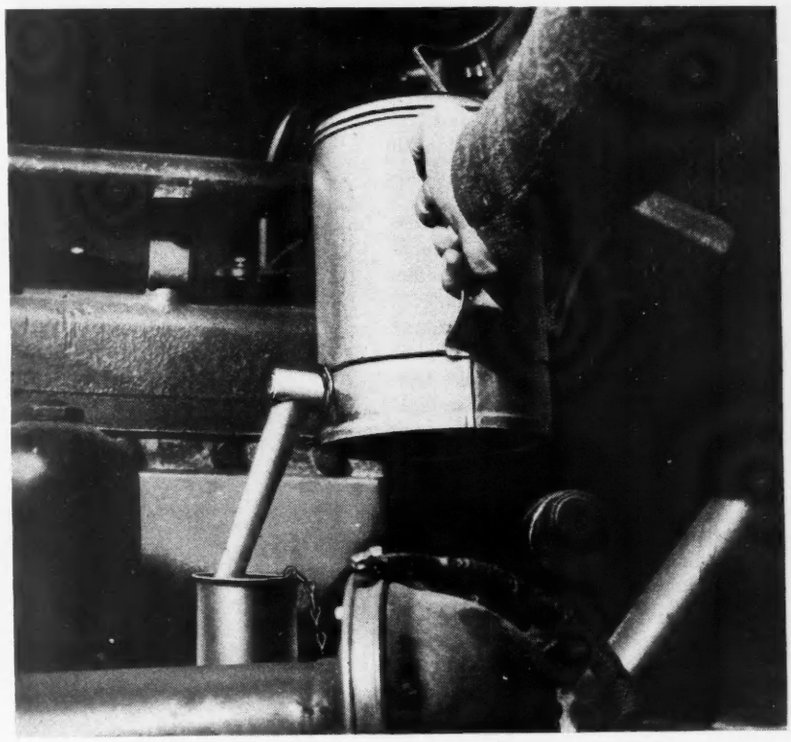
These five-year-club drivers appear rather pleased with their safety records. Are they typical of "ideal" drivers?

New Bearings Put 'Lubes' On the Spot

New Types of Engine Bearings Are Fussy About the Oil You Feed Them; Lubricants That Can't Stand Heat Are Poison to Them

LIKE the old saw "all is not gold that glitters," all lubes are not necessarily desirable bearing lubricants. What fleet operators should particularly bear in mind is that crankcase oil which was satisfactory for old types of bearings may cause the newer types to pit or crumble. As the work an engine will do for you, and the length of service that it gives depends a good deal on the lubes and blends used, it's important that you know something about the oil you buy. This story informs fleet operators on the requirements of the new bearings, and instructs them in how to pick the proper lubricants.

By JOSEPH GESCHELIN



MOST of the facts coming from the lubrication sessions at the annual meeting of the Society of Automotive Engineers in Detroit last month point a moral to the fleetman. It's as old as Aesop and we hope it won't make you say, Oh, yeah! It is—"Buy quality products, and make sure that they are right for your special case."

What gives a new twist to this old saw is the fact that engines are going through some very important changes. The biggest change, to you, is the swing to the new types of engine bearings—copper-lead, cadmium-silver, Satco, and the like. And the reason for the change is that these bearings can take it better than the babbitt bearings with which you grew up. These bearings will stand higher crankcase temperatures, greater loads, and more pounding, making it possible to give you engines with better life and more performance without going to bigger sizes and more cost. However, the new bearings are very fussy about the oil you feed them. And there is nothing unreasonable about that when you think it all over.

What the oilmen say is this: For best results use only high grade crankcase oil which is known to be absolutely stable in service; in other words, the kind of oil that won't break down and *oxidize*. If you use a break-in oil, make sure that it doesn't contain free fatty acids as blending agents because fatty acids corrode the new bearing materials. If you have found it desirable to use blended or compounded crankcase lubes, be sure that whatever is added to the oil will have no harmful effect upon the bearings.

The gist of it all is that the new bearings just refuse to live with any lube that has free fatty acid or any other blending agent that behaves like a free fatty acid. Besides that, if the lube can't stand plenty of heat, it may form certain acids that are poison to the bearing.

Of course there isn't anything alarming in the situation if you know the whole story. In the first place, a good straight mineral oil is perfectly safe to use, according to oilmen and bearing experts. In fact any of the compounded or blended oils are good if the right blending materials are used, and that's something you must check for yourself. For example, C. M. Larson, of the Sinclair Refining Co., is our authority for the statement that although free fatty acids are poison, certain fixed fats not only are stable but give better *oiliness* to the lube.

You may wonder why these things have become so important all of a sud-

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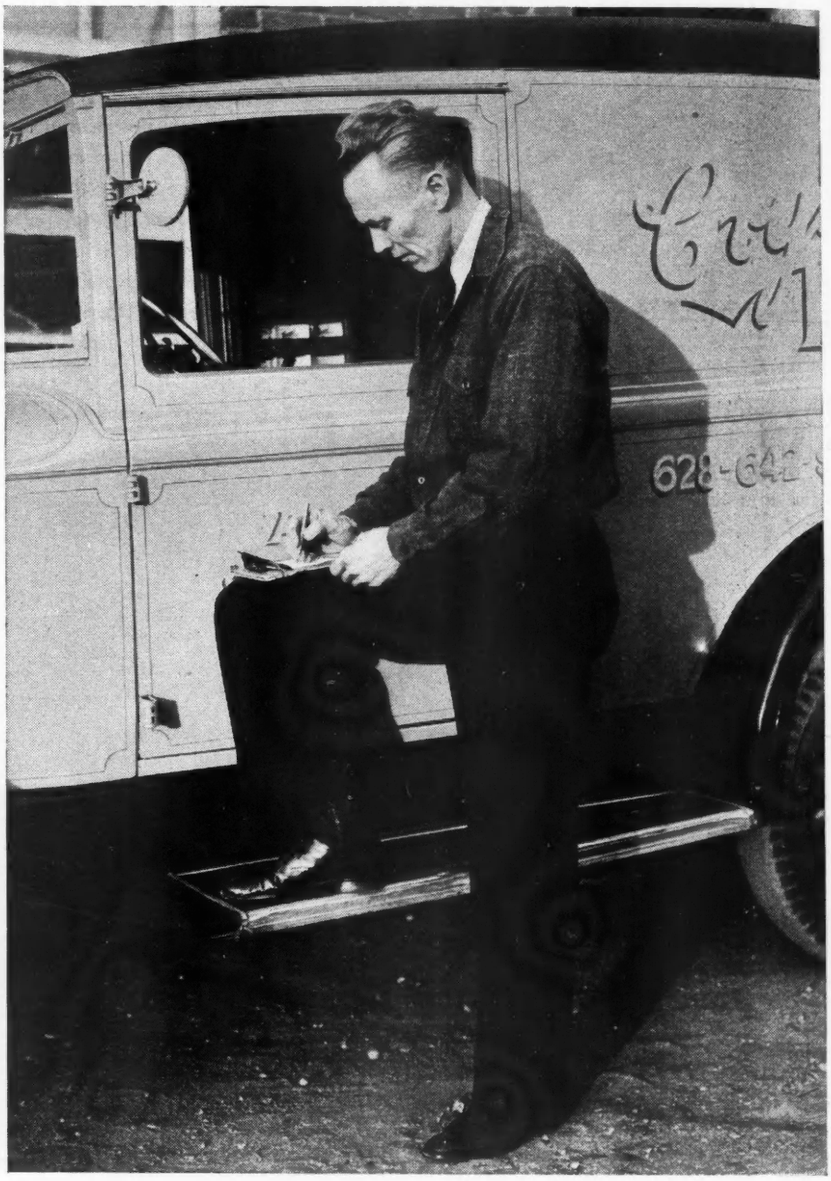

At right is a "settled" driver clinching his claim to safety by carefully filling out his weekly truck maintenance report

LIFE MAY BEGIN AT 40, BUT—

Safe Drivers Are "Settled" At 35

.... Says This Denver Operator Whose Fleet Has Had But One Accident in 475,000 Miles

By D. F. KINNEY

CAREFUL selection and training of drivers, centering around the salient fact that every routeman must be over 35 years of age, has brought about the establishment of an enviable safety record of only one accident—and that a minor one—in more than 475,000 miles of driving for the Crystal Laundry Co., Denver, Colo.

This record is particularly interesting in view of the fact that it was made in the face of every serious weather condition—snow, sleet, rain, some of which reached blizzard and cloudburst proportions—and in a city where civilian motorists are reputed to have been greatly responsible for one of the highest traffic death rates in the country.

In addition to the selection and training of drivers, rigid enforcement of a weekly routeman's report has also played an important part in bringing about this unusual safety record. Another outstanding contributing factor in safety is the fact that a truck is more or less the "personal property" of its driver, and the routeman cares for it in the same manner as he would his own private automobile.

The selection of drivers over 35 years of age, is considered to be one of the most important parts of the firm's accident-prevention program. The company makes this requirement primarily because it is felt that these older men are more capable and responsible.

"A MAN 35 years old or more is of what might be called the 'past generation'," E. C. Kay, president and in charge of the drivers, pointed out. "His earlier life has not been influenced by the present trend of rushing and unnecessary speed. He has had more experience and has been able to really understand that speed and efficiency are all right if they are attained in a careful manner. He realizes that fast service is vital to the company, but does not succumb easily to the theory that speeding and steady driving are synonymous.

"It is almost certain that a man of this age enters and leaves alleys at slow speeds and has his truck under control when he approaches an intersec-

AT what age is a truck driver to be considered a safe driver?

Opinions vary. In another story in this issue the most desirable age for drivers is placed between 25 and 35. The Crystal Laundry, of Denver, however, says a truck driver is at his best, from the standpoint of reliability, after his thirty-fifth year. It has a safety record to prove it. What do you think?

tion. A driver 10 years younger does not seem to have these considerations. Trucks and other machines of today are capable of high speed and necessarily have proportionate braking power. It seems as if younger drivers rely too much on this supposed braking power and do not slow down at intersections and alley entrances as much as the older drivers."

The company also feels that a man of this age is settled and has a family for which he must provide. Because of these responsibilities, he looks upon his driver's position as permanent work, not just something temporary until a better job shows up. A man this old realizes he is getting along in years and knows that, if he is to have a permanent position to guarantee the future of his dependents. The firm has found that a younger driver does not give this important point much consideration, either because he does not have much family responsibility or figures he can find another job if he loses his driver's position.

AN understanding as to the company's attitude in this respect is had with a man before he is selected as a driver. He is informed that while he is employed his truck will not be touched by any one but the company mechanic. Because of this, it is made known that he will be held responsible for any expenses that is the result of his own driving, such as paying for a tube if he allows a tire to run flat. As a means of making it possible for a driver to keep his truck in good and safe operating condition, the routeman's weekly report card is used.

"We made up the card ourselves and have found it to be very successful in promoting safety," President Kay pointed out. "Each card permits a full week's report and is made out by the driver. A complete report is kept of gas consumption and mileage.

"This check on mileage produces an indirect result on safety in that the economy made possible certainly provides a little extra money that can be placed where safety measures can be produced. A drop in gas mileage would show that the driver may be allowing the motor to run while he is serving a customer. Leaving the motor running has the effect on the driver that he can leave his truck almost anywhere. This is a very bad accident hazard because the average street is not very wide and a machine parked out from the curb greatly hinders other drivers. Another hazard is that a child might climb into the machine after the driver leaves it, and if the motor is running, there is a chance that he may accidentally set it in motion and subject itself to serious injury."

IN the second division on the card, the records of crankcase drainings is necessarily a pointer to the operation of the motor but is also one of the factors in accident prevention. A close check on oil consumption indicates mechanical difficulties causing defects that may lead to mishaps.

Weekly battery tests prevent the battery from freezing or drying up, which are always bad accident hazards. The driver might sometime get into traffic and accidently stall his truck. Any truck stalled in traffic is an accident hazard, and if the driver has to get out and crank the machine, he may be struck by a passing car.

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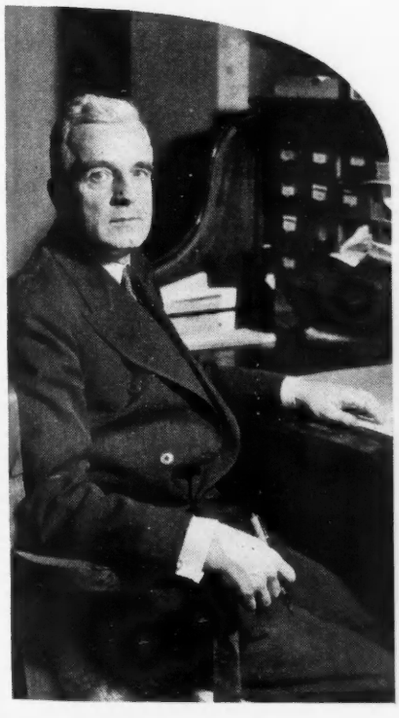
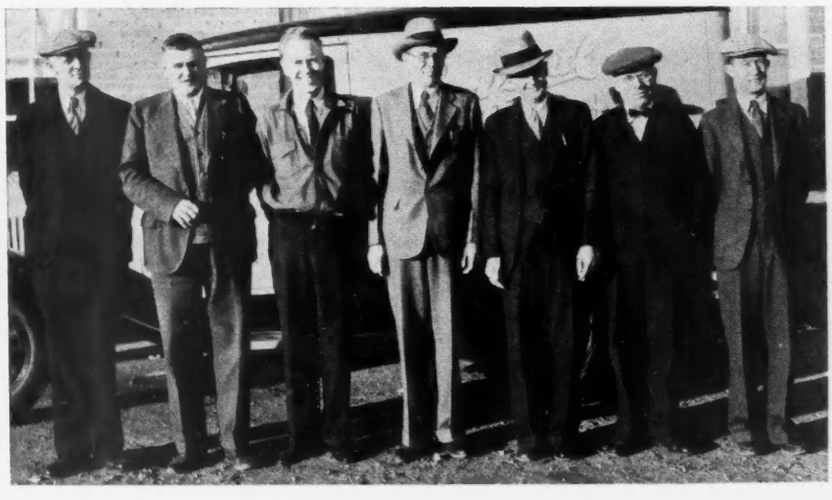
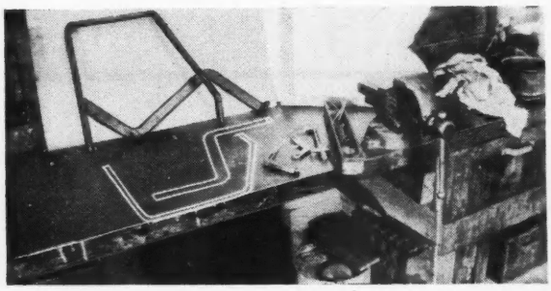


E. C. Kay (left): "Men of the 'older generation' (below) who are past 35 make the best drivers"





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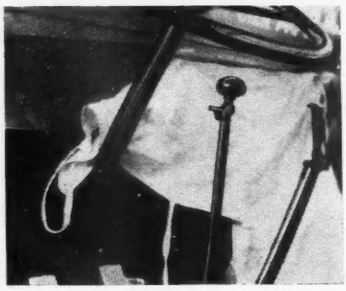

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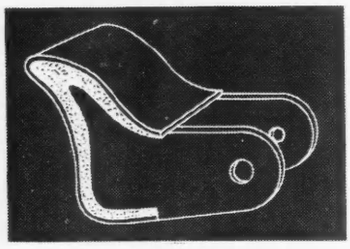

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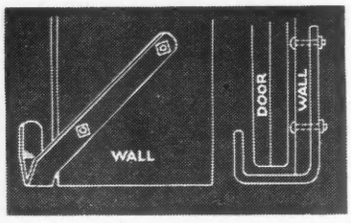

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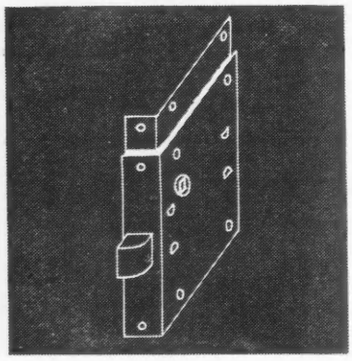

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Welding Works Witchery With Shop Problems

Air Hisses, Fire Flies and Like Magic the Answers to Puzzles Are Pulled Right Out of the Compressor Tanks

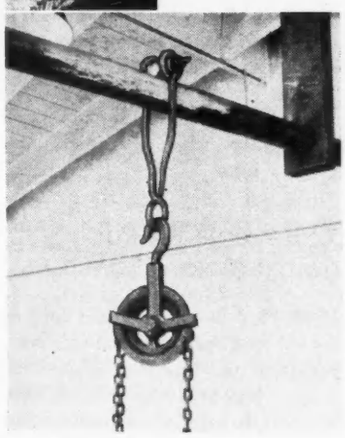
ONE of the best methods for shaping tire carrier members, step irons, fender supports and similar things is to chalk them on a bench. If the bench is too small, as is often the case, use the floor. With this aid many steps can be saved to and from the truck for fitting. Simply lay the iron to the line before trying to apply it. Our work was done that way and the fits are always exact. See Fig. 1.

When it becomes necessary to move the air connections or tank, apply heat around the plug or fitting and the work of removal will be easy. For the twisted off fitting or nipple, split the stuck portion with a cutting torch and pick out the pieces with a small screw driver. The threads in the fitting will not be damaged.

In one case the cab could not be

A WEST COAST operator gives us some hints on welding tricks that aid in fleet maintenance and operation, and thereby reveals the many possibilities to which a welding torch in a shop can be put. Some of these ideas, of vital interest to fleetmen, deal with thumb levers, door locks, a universal action hoist, a design for welding and—well, read them for yourself.

By BILLIE BURGAN
Fleet Superintendent
Hage's Ice Cream Co.,
San Diego, Cal.



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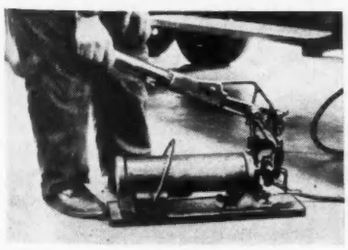

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hoisted over the gasoline tank because the seat box angle hung on the oval tank. Measurement revealed that ½ in. stood in the way. By lowering, hoisting slightly and shoving the cab to one side the cutting torch could be inserted to slice off the necessary ½ in. and the cab was free.

It is often easier to cut the muffler strap and weld it again than it is to remove the bolts which hold it. Splitting frozen spring U-bolts nuts is a simple operation and then since no threads are damaged two new nuts permit reassembling without delay.

A replacement for a broken reverse thumb lever under the gear shift ball could not be found. A ribbon of 16-gage sheet metal ⅝ in. wide with two side pieces of the same material cut to join the thumb piece made a new one. See Figs. 2 and 3.

Gear shift levers can be made long enough for driving convenience with a little work with the torch. Body hasp staples that come off are satisfactorily repaired by screwing two large wood screws into place. Cut off the heads and form a staple of them and weld them together. To remove, you cut the staple.

An accelerator lever on a low price truck fell off. A replacement went the same way. A little brass judiciously used makes them stick together. Now they wear out together.

A drop of brass to hold nuts in place on the lower side of a metal toe board makes the subsequent jobs involving the removal and replacement of these toe boards a one-man job.

A SLIDING garage door that swings in or out can be nicely secured with a piece of ⅜ by 1½ in. steel bent with a torch and mounted as illustrated in Fig. 4.

When the lock on a cab door is good but the wood is splintered badly enough to prevent plugging for larger screws, weld a strip of sheet metal to the lock as shown in Fig. 5 and in this way reach sound wood without the expense of paying for new wood and its installation.

Garage door padlocks that have succumbed to the shop cutters when the keys are mistakenly carried off can be restored with a welding torch and a little effort.

A horseshoe-shaped bracket suspended from a frame cross-member will prevent damage to the rear end in case the driveshaft drops. This bracket is also very handy in maintenance work in that it is a very handy place to rest the drive shaft until one end is bolted into place.

A torch-made hoist with a universal action pulling front or back, right or left comes in very handly. The rail is a 12-ft. length of 2½-in. pipe. The clevis is 3 ft. of ½-in. rod shaped as you see it in Fig. 6. The clevis bolt is a ¾-in. shackle bolt. Two round rings of ½-in. rod, a piece of 1¼-in. pipe, 2½ in. long, and a piece of ¾-in. pipe the same length all assembled and brazed make the roller spool. Fig. 7.

A grease gun with insufficient leverage at the handle was made workable by brazing a sleeve of ¼-in. sheet steel shaped to telescope the handle and the pipe extension. Fig. 8.

In addition to the things already enumerated, air towers, shelves and hose hooks for grease guns can be made, as well as countless other shop tools if the operator is willing and able to study the possibilities of the torch.

NEW BEARINGS PUT 'LUBES' ON THE SPOT

(Continued from Page 17)

den. Well, actually it has always been advisable to buy the best lubes on the market. But lately as the engines are worked harder and are required to give a higher order of performance, it has been necessary to use better bearings and better lubes. In fact the drive for better lubes has brought out blended lubes which have special *oiliness* properties, that is to say, they have certain materials added that increase the film strength of the lightest oils such as 10W and 20W.

You know that certain things like oil and water just don't mix. The same is true of certain lubes and blends when run through the new bearings. Free fatty acids either pit them or cause the whole bearing to crumble. But the right kind of lubes, no matter what their make or composition, work beautifully and give you a sweet-running job with plenty of service life.

COMMERCIAL CAR JOURNAL has had a lot of live discussion in the past concerning crankcase draining. Some fleetmen drain frequently—some don't drain at all. Don't let this change your routine in any way. But, if you use oil that tends to oxidize and sludge, and if this results in the birth of formic or acetic acid (credit A. W. Burwell of the Alox Chemical Corp.) watch out for trouble with the new bearings. Even good oils may form harmful acids over a long period of time due to the action of dirt, grit, cylinder dilution, and the like, so it may be a good idea to test the crankcase oil at regular intervals, if you're one of those who don't drain. In fact, as a measure of safety it may be a good idea to drain more frequently on the hard-working jobs.

H. C. Mougey, of General Motors Research, sums it up this way: Whatever lube you buy, make sure that it will work with the bearings in your particular engine. Select the lubes that have no corrosive element to begin with, and be sure that they are stable in service. Don't worry about acidity so long as the type of acidity is not harmful to your particular engine.

That just about sums up what is known about the lubrication of the new engine bearings. There is nothing particularly fussy about it except to be sure that you select the right kind of lube. Your engine builder can probably tell you what makes of oils are safe to use.

As a fleet operator you have two other ways of satisfying yourself that the lubricants you buy are free from the objectionable elements. You can buy from a reputable oil concern and accept its say-so, or you can have a sample tested cheaply by any chemist or testing laboratory.

Another live topic in the air today is the matter of E-P (extreme pressure) lubes for hard-worked axles. As you know, these lubes were developed originally to take care of hypoid gearing but more recently some operators have tried to use E-P in worm gearing with sometimes disastrous results. A very constructive investigation of the lubrication of worm gear axles was made by C. H. Schlesman, Socony-Vacuum Oil Co., and reported in his paper, "The Lubrication Requirements of Automotive Worm Gearing."

MR. SCHLESMAN sums up all his work with the statement that "no single product possesses all the desirable characteristics of a worm gear lubricant, but that the best lubricant must be selected for each class of service." In other words, there is no ideal lube on the market and it's up to you to pick the one that has the best combination of good points.

E-P lubes are not recommended for worm gear axles as a general rule. As one oilman puts it—if you're overloading your equipment to the extent that no good lube will keep the gears together for a trip, then use E.P. It will at least get you there, although at the end of the trip you probably will have no gear teeth left.

For conventional worm gears, Mr. Schlesman recommends the use of a well refined oil, for general use, where tooth loading is not excessive. For tractor-trailer trains, particularly in mountain service, where the load-carrying ability of the lube is most vital, he recommends a compounded lube containing a blend of animal or vegetable oils and synthetic petroleum acids. In a satisfactory compounded oil, the blended materials must be absolutely stable under heavy going.

While the fleetman may not be able to test the worm gear lube in his own shop, it is interesting to note the following tests that a good lube must pass satisfactorily. Remember that no one lube will pass 100 per cent, but the best compromise is the one you want. The seven requirements are as follows:

1. Low losses produced by churning of the lubricant.

2. Best efficiency of the gearing at normal loads.

3. Ability to carry maximum loads without seizure.

4. Effect of lubricant upon fatigue limit.

5. Best stability in service.

6. Low rate of wheel worm and bearing wear.

7. No corrosive effect upon surface finish of worm, wheel, and bearings.

While we are on the subject of rear axle lubes, we might mention an interesting investigation by one of the big oil laboratories in testing for channeling. They found that certain axle lubes have a tendency to pick a lot of air bubbles, "aeration," when they get up to about 70 deg. Fahr., which is around the winter operating range. When the axle cools down to air temperature and is started again, you find that the pour point is upped, with the result that the lube no longer flows to the bearings.

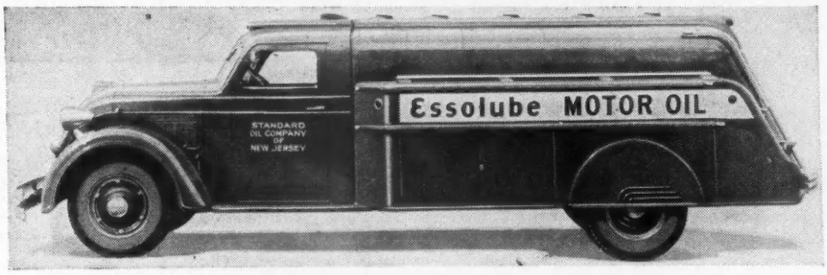
If the same lube is now heated to about 125 deg. Fahr., it flows normally or even at a lower temperature than ever before. This feature may not be generally known and may be well worth watching when you pick your winter axle lubes.

ICC Reveals RR Publicity Against Motor Transport

INDIRECTLY revealing the extent of railroad propaganda against highway transportation, the Interstate Commerce Commission has analyzed expenditures by Class I railroads for purposes other than construction and physical operations, according to the National Highway Users Conference. The result of this analysis and a rebuke for apparent wastefulness are contained in a report issued by the commission on the basis of replies by a questionnaire it addressed to 145 railroad managements.

Reference is made in the report to "a budget raised by various railroads, shippers and manufacturers for use in connection with regulatory laws on use of highways by motor carriers." Though the report does not indicate the size of that budget, one railroad is cited as having made payment of $46,632 to the fund for three years of the period.

The commission's files in the future, according to the Conference, will contain direct evidence of the amount of money spent by the railroads.



We don't know what you'll think, but ye editorial slaves think this special Standard Oil tank job proves the Dodge Airflow front-end design is a natural for trucks .

Ears to the Ground

INFORMATION WHICH IS INSIDE, ADVANCE OR JUST UNUSUAL

Low-Priced Camel Backs

It took us a couple of months to make sure of the facts, but now it can be told that a company prominent in the truck industry is going to invade the lower-priced field with camel-back models. Our understanding is that in capacities they will range from 1½-ton up. Development work has been going on for some time, and the announcement will probably be made in time to take advantage of the big spring buying season.

Okay for Reclaiming

Another of our large oil refiners has undergone a change of attitude on reclaiming of crankcase oils. Heretofore the representatives of this refinery have maintained what might be termed a "frigid silence" when pressed for their views on oil reclaiming. The change occurred when several of the refinery's best fleet customers declared their intention of reclaiming oil. This compelled the oil company to declare itself, and it has to the extent of advising the customers which reclaimers they should consider.

Independently Sprung

An old name, we understand, will re-enter the truck market with a model that has leaf spring independent springing. The company, we hear, has been showing a model at several local dealer shows in the mid-west.

Others Springing

A number of other companies are playing with independent springing for trucks up to 2-3 tons. Included are a couple of companies not now in the truck field. Designs are purely experimental with no definite plans laid.

New Front-End Springing

A new type of independent front-wheel springing for trucks was shown for the first time at the Belgian Automobile Show. It was shown on a heavy-duty Miesse diesel truck. The front axle is in two L-shaped halves, and the short legs are to the steering knuckles in reverse-Elliott type. Close to the angle of each axle-half is a spring pad on which a conventional chassis spring is clipped in the usual method. The long legs of the axle halves extend toward the front of the truck where they are fastened to a transverse bar supported by the frame side rails. In the event of spring breakage the axle stays in true alignment.

Re Cylinder Liners

The trend toward more truck engines with cylinder liners will doubtless be stimulated by the availability now in this country of centrifugally cast nitricastiron. Europe has had it for several years. Its outstanding uses are as liners for the cylinders of truck, bus and tractor gasoline engines and diesel engines. The nitriding produces the hardness and the centrifugal casting the density that results in fine texture. Are you interested in knowing more? There's a book on it that you can have for the asking. Check "E" on the postcard on page 72.

Trucks Not Bound

Truck manufacturers are not involved in the agreement among passengar-car makers to announce new models in the fall. Many of them have already achieved the ambition of several car companies, that being continuation of new models in productions for more than a year.

Butane Gas-Saver

A west coast carburetor manufacturer is getting ready to announce a new butane gas-saver. If you've been flirting with the idea of using butane as a fuel, you'll probably want to know all there is to know about this device. We'll put you in touch with the maker, if you wish.

125 M.P.H. in Diesel

The newspaper printed the facts, but in case you overlooked them you should know that the speed record for diesel engines is now 125.065 m.p.h. Race-driver Dave Evans scuttled the British-held record of 120.033 m.p.h. at Daytona Beach in a racing car powered with a six-cylinder Waukesha Comet Diesel having a 5-in. bore and a 5½-in. stroke. The record was the average of two one-mile runs. Going south Evans traveled 119.08 m.p.h., and going north he rang the bell with 130.813 m.p.h.

Wanna' Buy a Signal?

We are always glad to help an idea along. A reader-inventor writes us that he has patents pending on a new direction-signaling device. It operates mechanically from the inside of the cab. The signal works by hinge action. If any manufacturer is interested in the details we'll establish contact with the inventor, who will conduct his own negotiations.

Safety Chart

You'll be missing something very useful and important if you overlook the special insert opposite page 34 which charts the Safety Requirements and Safety Regulations of All States. If you have need of an extra copy or copies, just ask for them. We have 500 on hand, and first come first served.

FREE!

Use the Convenient Postcard on Page 72

Note the reference letters below and simply check the corresponding letters on the postcard.

E—Book on Nitricastiron Centrifugally Cast.

F—Advance dope on model with leaf spring independent springing

Special Offers

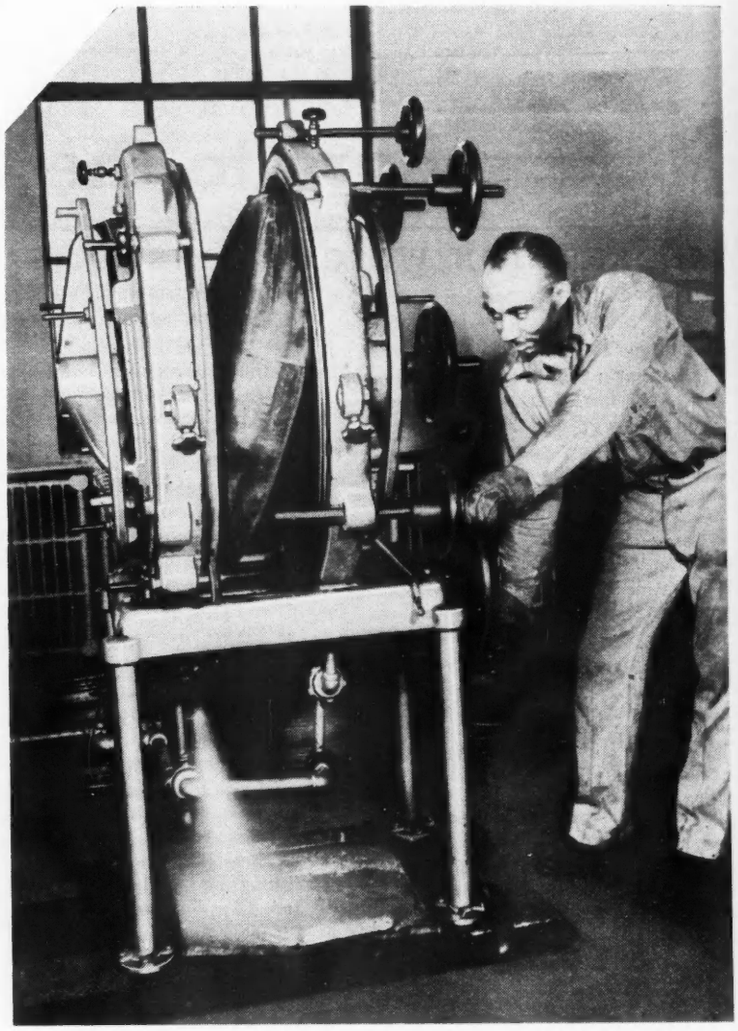
For additional Special Offers A, B, C and D turn to page 72

How Fleets Should

A West Coast Operator Gives Advice On Retreading Routine and Shows That Care Must Be Used in Selection of Shoes

By WILLIAM E. FRAZER

West Coast Operator



Tire going into the mold for the cure in retreading

THE use of retreaded tires by truck owners of every class from the individual to the large fleet operator has become a very common practice in Western regions during these depression years when every man who owned or operated one or a hundred gas wagons felt the need to cinch up the belt another notch. To be sure, retreading has been practiced for many years, but these past four years have seen a tremendous increase in the business, particularly west of the Rocky Mountains. Retread plants have sprung up on nearly every corner, containing moulds singly and in great batteries, promising every sort of job to fit every purse, and what is to be regretted, promising in some instances service beyond belief in the way of mileage out of that old carcass. After the first year of this retread boom we, in common with thousands of others, finally succumbed to the lure of economy, and began a course of very cautious experimentation with salvaged tires. Out of this experimentation we have moulded a few opinions and discovered a few facts which may be of some worth to those who have stubbornly held out against the urge to give it a whirl.

About the first thing we discovered was that every possible care must be given to the selection of casings which are to be retreaded. That involves work that must be taken into consideration when you add up the figures to get the total cost, and compare it to the cost of new casings. You have got to get acquainted with your carcasses, and the only way to do it is to keep a tire record card for every casing in service. We have maintained such a record for many years, and it was a big help in making the final inspection and selection of casings to be retreaded. When a casing was turned in for junk, its card having been marked "worn out" by the mechanic who handles our tire work, the tire record card for that casing was pulled from the file. When a number of removed casings were assembled in the tire room, they were given a thorough visual inspection by the foreman, who looked for signs of ply-weakness. All casings which passed this inspection were then set aside, and the tire record cards covering their history were examined to see how long the tire had been in service, how many miles it gave, and how many punctures each had suffered. The reason for this record is that the younger the casing, the better the condition of the cords. The fewer punctures a casing had, the fewer times the casing was run flat, and therefore, the better would be the condition of the sidewalls and beads. With such a record of each casing, we selected only the very best for retreading. Whenever there was any doubt, the casing was junked.

The next thing after selection of the

Handle Retreading

Make-ready for the cure in the recapping process

HERE is an exhaustive and illuminating study on tire retreading as practiced by a large truck fleet on the West Coast. This operation boasts enough experience with retreads to know what it is talking about, and definitely goes on record to the effect that there is economy in retreads to the lovely tune of a 35 per cent saving over the cost of new tires. Each tire must be considered as an individual and specific case, and you should select, above all, the very cream of your carcass crop.

This story describes tire retreading routine which other fleets can follow if they want their tire to pay dividends.

For available information on retreading tires check "A" on the post card, page 72.

casings was to decide upon a competent firm to do the work. In the beginning, this is perhaps mostly a matter of guesswork, faith and trust—unless one inquires of others who have had retreading done. Trouble is usually encountered here, for out of the hundreds of retread plants in operation, a relatively small portion of them turn out what might be called first class work. The best way to settle the question is to split your first batch or two of old tires with three or four of the most reliable-looking firms who can give you some indication of their ability, and watch the results. It won't be long before you know who is going to get your business. We discovered, in that first year, one good firm consistently turning out good work; in other words the tires he retreaded gave us the best service. Some firms at times turn out excellent work and at other times poor to fair work.

Results on retreading improved after the first year, and surveys we made of each succeeding year's batch of retreads, as they became worn out and were removed from service, proved that retreading, carefully performed, pays dividends. We have found that our retreads cost a little more than one-half the cost of a new first grade tire, while we obtain from retreads an average of about 75 per cent of the mileage obtained from new tires, which makes our retreads cost us about 65 per cent, roughly, of the cost of new tires per tire mile. This takes care of money expended for the tire as a commodity.

PROPERLY selected carcasses which have been retreaded seem to have no greater proportion of blowouts than new tires, but they do appear to suffer somewhat more severely from cuts.

Another consideration in the use of retreads by operators of large fleets is that they must be confined to certain classes of work to obtain the maximum service, and, therefore, the maximum economy. In our own set-up, we have found that where there are many stops and starts during a day's use of a vehicle, retreads give the poorest service and do not compare favorably with new casings, as a rule. However, driving which requires many stops and starts is severe on even new casings, and retreads cannot be condemned on that ground. Under more favorable conditions, such as on light vehicles making comparatively few stops and starts, operating on smooth types of pavements, such as asphalt, retreads give excellent service, and we have, on such vehicles under such conditions, removed retreads with as much as 23,000 miles to their credit. That is good mileage even for a new tire in our services.

Two years ago our average mileage per tire for all retreads removed from

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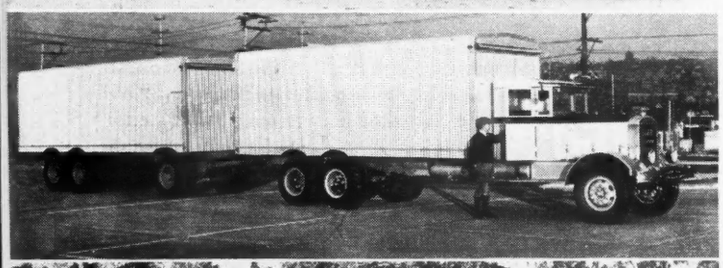


The ALBUM

Of Modern Truck Transportation Equipment

LET them eat bread! Brockway equipped the Cortland Baking Co., of Cortland and Corning, New York, with 11 of these nifty units. Capacity is 1500 loaves and the interior is specially constructed of sliding trays in steel racks. All Brockway built, the chassis is model 80, gross load 11,500 lb., 155-in. wheelbase, 72 hp., six-cylinder engine. Wide rear doors and a sliding door in the driver's compartment afford easy access to the interior of the body. Outside panels are all-steel.

THIS spectacular job will knock your eyes out (especially if you look at it too long under a brilliant sun). It is of all-aluminum construction, corrugated design, Fageol truck and trailer Model 10-46. The unit is equipped with an RB Waukesha engine. Wheelbase accommodates a 22-ft. body, 8 ft. wide. The aluminum body saves a ton in weight over a similar construction in steel. Note the ventilators in the nose at the top of the truck and trailer bodies. Take it or leave it, it is a very striking job.

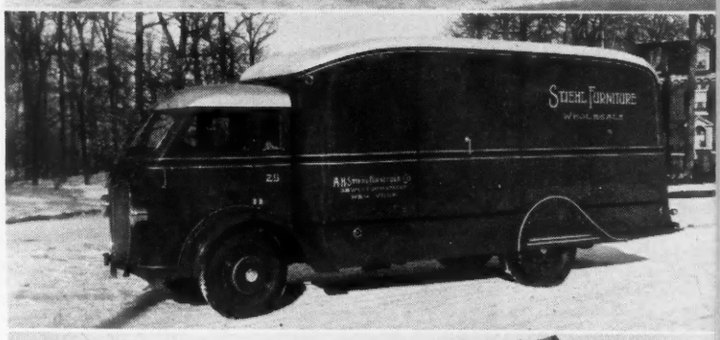
HERE'S a bang-up, smart job built by Corbett for Horton Motor Lines, Charlotte, N. C., used for long-distance service. The 25 ft. body is of light-weight alloy all-steel construction. Note the large block letters superimposed on the sides and a spot light over each. Plenty of port lights play-up the unit at night. It is undoubtedly an interesting sight anytime of the day, beautifully finished and equipped.

FROM San Joaquin Valley, Cal., comes this monster unit with a 60,000 gross load of wine, raisins or canned food stuffs set for a 500 mile run between Fresno, Stockton and San Francisco. The Moreland tractor is equipped with a six-cylinder Hercules diesel engine, Model DXR, and the unit averages eight miles per gallon on four-cent diesel fuel—says the General Transfer Co., of Fresno, who is operating this over-the-road-custom-built-baby.

CHEVROLET goes a courtin'. This time it's with ice cream. Here we see a 157-in. wheelbase 1½-ton unit with standard cab and special dry-ice refrigerated ice cream body. Of course, it's painted white, and is the pride of Superfine Creameries, Inc., Baltimore—as well as Chevrolet. The dressed-up driver goes well with this spiffy unit. What we would like to know is: How much ice cream, if any, may an ice cream truck driver eat? Or maybe, how much can he get away with?

Additional details of any unit described will be furnished gladly on request.

THIS Indiana (built, sold and serviced by White) does an excellent hauling job for the Colonial Beacon Oil Co., New York. It is a model 17DR with a deluxe 1500-gal. Heil-built aluminum tank. Rear housing is beaver-tail shaped, fitted with side swing doors. Hand and toe rails are chromium-plated. Package compartments are built below run-boards. Directional signals are located in beaver-tail end. This streamline design is patented by Heil.



FITZ GIBBON & CRISP may "point with pride" to this streamline furniture van job built for A. H. Stiehl of New York City. The roof curvature follows Autocar's sloping windshield streamline idea in the chassis. Note the slight turtle-tail design of the rear. Lines above the wheel skirt suggest flight. Inside body dimensions are 18 ft. 7 in. long, 95½ in. wide, 80 in. high. Double doors 60 in. wide are on the sides, none in the rear. Body construction is oak frame and steel panels with plywood lining to the belt on the inside.

MODEL 87K6 diesel-powered Hug road-builder equipped with a Buda 6D415 engine leaves little doubt in one's mind as to its power and ability. Built for hauling heavy road machinery or for regular transportation service, C. L. Swords, of Peoria, Ill., is set to do either with this unit. Side boards on the body are removable. Rear axle is double reduction Wisconsin dual drive. Fuller transmission has eight speeds forward, two-speeds in reverse. Westinghouse air brakes on all wheels. Note Hug set-back wheel design. Would you like to have a tugging contest?

A GRAMM tractor Model D is the power house for this semi-trailer unit designed and built by Gramm engineers to handle 3950 gal. of gasoline and oil. We have no word as to its length but from the looks of the thing it's no midget by anybody's wheelbase. A. A. Curry takes it with him wherever he goes over Indiana roads. Modern, rugged, powerfully built, don't try to stop it with your Austin!

MARSHALL FIELD of Chicago has adopted this modern type of equipment to transfer merchandise from the warehouse to the main and associate stores. The route lies through Chicago's congested loop. Fruehauf built the trailer and body. The body is standard oval front type "C". Body frame measures 20 ft. 4¾ in by 36 in. Ventilation is from the side. Sloping metal pullman-type roofs and special folding doors at the rear are features of this body. Tractor is by Autocar.

HOW FLEETS SHOULD HANDLE RETREADING

(Continued from Page 25)

service during that year was 8800, compared to an average of 12,800 miles per tire for new casings. Both averages, by the way, cover small casings only, as we did not retread truck sizes at the time. A year later finds the average mileage obtained from retreads creeping upward, which indicates continued advancements in the art of retreading. During 1934 we removed 81 retread casings from vehicles which were either badly cut beyond repair, worn out, or blown out, and the average miles per tire was 9764. The average miles per tire for new casings removed during the same year was practically stationary compared with the year previous, indicating, perhaps, that new casings haven't much left to offer us in the way of increased mileage through improvements in the tire making art. Our operating conditions as they affect tire wear have not improved during this period; the pavements are the same, traffic congestion is perhaps greater, and payloads have not been lightened.

FROM the 1934 record we find that 18/5.50 size retreads lead with an average of 19,064 miles per tire; 32x6.75 size, place second with an average of 17,406 miles per tire; 7.50/15 (donuts) are third with 14,414 miles per tire. The 19/5.00 size turned out 12,293 miles per tire, while the 18/5.25 size dropped down to an average of 6837 miles per tire. One feature of this particular record is that there is one brand of tire which gives extraordinary mileage when the casing is new, but due to certain structural details this brand retreads poorly and seldom gives more than a quarter of the new-tire mileage.

An example of the effect various loads carried have upon retreading tires is given in one summation made of the retreads removed from service during 1934. All retread casings removed from pickups which carry loads up to 1000 lb., averaged 7100 miles per tire. These tires were used on all sorts of roads and under all kinds of driving conditions, and the figure is a general average. All retread casings removed from coupes, used in all types of service and under all sorts of road conditions, averaged 9437 miles per casing. This would indicate that the most economical use of retreads is obtained by confining them to passenger car service, and, if you haven't passenger cars in your fleet, to the lightest vehicles you are operating.

A GOOD many retreaders in this vicinity are supplying a one-year written guarantee against all road hazards, some even going so far as to guarantee against stone-cuts, rim-cuts, underinflation and wheel mal-alignment, which would appear to be covering a good deal of territory. However, we have had occasion to make dealers fulfill guarantees on an adjustment basis, which is satisfactory to us. While on the subject of guarantees, it can be said that at the present there are very few cases of the tread-rubber, or "camelback," as it is called in the trade, pulling away from the carcass, indicating advancement in the art of vulcanizing the tread rubber to the carcass.

An example of the results obtained from retreads under different operating conditions is indicated by several specific casing records. For instance, a 19/5.50 6-ply casing, new, ran 11,401 miles on a pickup in suburban service where roads were good, but stops and starts infrequent. Retreaded, this casing was placed on a coupe in city service, and wore out at 5409 miles.

A 19/5.00 6-ply casing, new, ran 6880 miles in city service, was retreaded, placed in suburban and semi-rural service, and ran 6974 miles when it was badly cut. But at this distance the tread rubber was not yet worn smooth, and would have delivered several thousand more miles of service had it not been for the cut.

IT is difficult, however, to forecast definitely just what results will be obtained by the use of retreads, or, for that matter, for new casings. Each casing, new or retreaded, is an individual and specific cases, operating under conditions that cannot be exactly duplicated again by another casing even on the same vehicles. Who can say for certain that, if a retread casing wears out at 7000 miles on a certain car, a new casing would have lasted longer? There are so many changing factors in connection with motor vehicle operation that the best we can do is to add up the total figures and trust that our averages reflect in some measure the actual conditions, and that they will prove to be at least a near-correct guide to future operations. About all we can do in making any statement of benefits to accrue through the use of retreads is that, from the figures quoted, it appears that the most economical use of retreads is received first, when used on light vehicles making the fewest stops and starts; second, on light vehicles where stops and starts may be somewhat greater; third, on light-type vehicles carrying loads not exceeding 1000 lb., and which are, being of the passenger car type, capable of making quick getaways and quicker stops, but placed in service where such stops and starts are not required; and fourth, on light vehicles carrying loads under 1000 lb. but which are in service demanding many stops and starts.

There is little question but that the average fleet operator can save money by using retreaded tires, provided he enters upon his program cautiously, experiments with a few at a time in his various services under his own particular conditions, and tries out a few of the best retreaders in his locality to determine which one performs the most uniform and outstanding work.

Select, above all, only the very cream of your carcass crop.

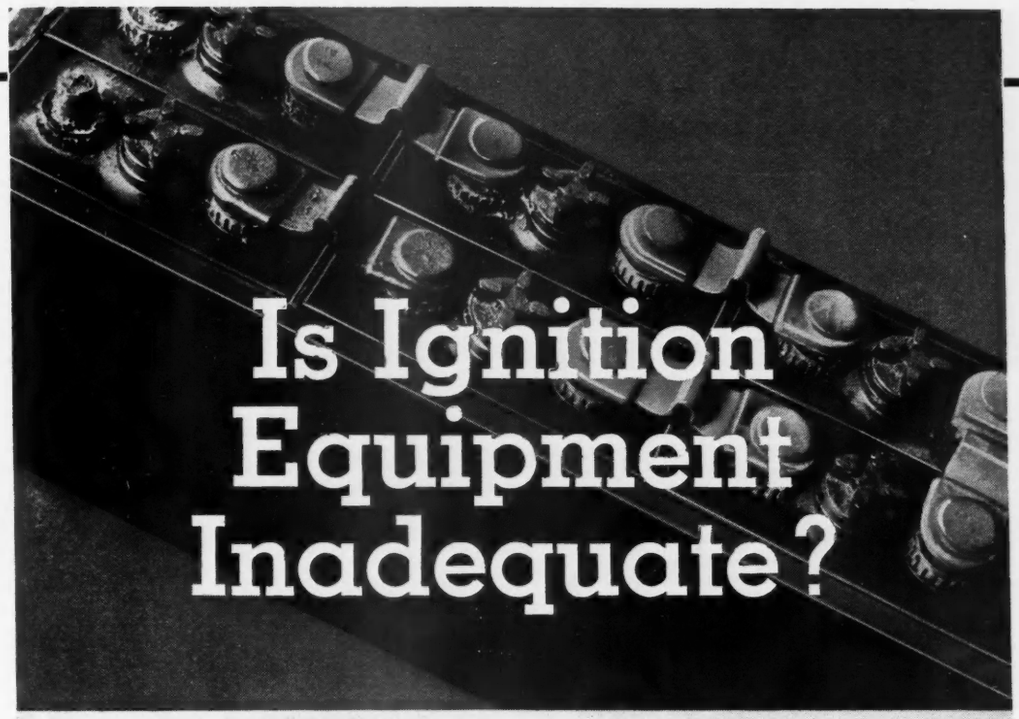
Goodyear "Double Tube"

A NEW tube for automobile tires eliminates the serious accidents that follow a blowout at high speed. A number of tires were purposely blown out at 60 miles per hour on a car roaring down the road in recent tests, and in every case the new tube allowed the driver to bring the car to a stop in a normal manner under complete control.

Developed after several years of research and experiment by engineers of The Goodyear Tire & Rubber Co., it consists of a "double tube," one inside the other and joined together at the base, with a single vent hole connecting the two air chambers.

The outside tube is similar in function and appearance to a regular tube and fits against the inside of the casing, while the inside tube or "lung," built of two plies of fabric, floats free without chafing.

When a blowout occurs the air escapes from the outside chamber immediately but can escape from the inner chamber only through the single small vent hole. Thus only a portion of the air is lost in the blowout and the tire drops down slightly to ride on the inner fabric carcass, which loses its air very slowly, permitting control of a speeding car.



Is Ignition Equipment Inadequate?

OPERATORS' REPORT AT SAE MEETING SAYS IT IS—ESPECIALLY IN LIGHT AND MEDIUM CLASS TRUCKS

F. L. FAULKNER, manager of the Automotive Department of Armour & Co., rose up at the S.A.E. meeting in Detroit and turned the batteries of a special committee on the ignition equipment of trucks.

He spoke frankly, but in the spirit of helpfulness, and while some of the things he said may not please some manufacturers, all of the things he said should be given thoughtful consideration.

If fleet operators who read this have more to contribute on the subject, these pages are theirs.

TRUCKS, especially those in the light and medium class are decidedly lacking in adequate ignition equipment.

This criticism was the theme of a report made at the annual meeting of the Society of Automotive Engineers in Detroit last month by F. L. Faulkner, manager, Automotive Department, Armour and Co., chairman of a subcommittee of the SAE Transportation and Maintenance Committee. In establishing this theme the report insinuates that truck manufacturers give their vehicles sales appeal at the expense of the practical features so dear to operators' hearts. To be specific, the report suggested that a reduction or sacrifice of bright work and plating expense would be welcomed by the fleet fraternity if the amount of money saved would be expended for the installation of high-grade ignition equipment.

The paper began at the heart of the electrical system—the storage battery. Mr. Faulkner outlined the two standards devised by the SAE for determining battery performance. One standard specifies the number of minutes that a battery will continuously deliver 300 amp. to a final voltage of one volt per cell at a battery temperature of zero degrees Fahrenheit. The other specifies the capacity in ampere hours when discharged at the 20-hour rate to a final voltage of 1.75 volts per cell at a temperature of 80 deg. Fahr.

Fleet operators are satisfied with these two standards as measures of the performance of a battery. In checking the offerings of battery manufacturers it will be found that some manufacturers have as many as six different batteries which will qualify under one SAE number. The SAE classification is, of course, based on the tests outlined above. The major differences in the batteries which classify under one SAE designation are in the quality of the material, type of insulation, plate area and price.

This array of battery types serves to confuse the fleet operator in his selection and confound him in servicing batteries in the field. Operators are interested first in having a battery furnished that can be readily serviced. Second, the battery must be of sufficient size for a given engine size so that it will assure satisfactory starting at zero degrees Fahrenheit. Third, sufficient lighting ability to carry in addition to normal lighting the special lights required to meet up with various state requirements.

In gaging the size of the battery for the job, it appears, said Mr. Faulkner, that some of the truck manufacturers consider the situation from the standpoint of a new battery fully charged. In actual operation the average age of a battery in a fleet will vary from 9 to 12 months. They are rarely, if ever, fully charged, especially during winter operation when they are subject to the greatest loads. For this reason the output of a battery at zero degrees Fahrenheit for a period of 5 min. to a voltage of one volt per cell is suggested as a suitable test.

Allowing for a range in the starting loads due to varying engine design, Mr. Faulkner declared that vehicle manufacturers do not have suffi-

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HOLLYWOOD is the great glorifier. It has glorified gangsters, newspaper reporters and fallen women. It has filmed scores of movies of armed stage coaches, mail trains, river boats and canals. The bus came in for a play in "It Happened One Night." Now it appears that the truck will play a leading role. The first of what will be the usual series, according to reports from the movie colony, was "St. Louis Kid." Others are in process.

What's happening in Hollywood is told in this interesting story.

Hollywood's idea of a fleet operator's office is rather snooty. Charles Wilson plays typical operator

Hollywood Finds Trucks Have "It"

Movie Moguls Pause in Their Glorification of Gangsters and Gals With Triple-Distilled Sex Appeal to Point Cameras At Motor Trucking

By DEWITT MILLER

MAYBE trucks haven't much sex appeal, but there's a lot of good, solid drama in them. Anyway, that's what Hollywood thinks—and it takes at least a third assistant censor to argue with anybody in Hollywood. It's taken a long time for trucks—just ordinary, back-alley trucks—to make the grade as legitimate feature material, but they've finally arrived.

Transportation, in its many forms, has always been a favorite theme for dramatists. In the very early days of the movies when the film broke regularly twice a night the pony express rider was quite the thing as a hero in the Deadeye Dick westerns.

Then came the saga of turning wagon wheels, "The Covered Wagon." That same story is revived every year or so under one title or another—just to show that we haven't forgotten the time when the schedule for the long haul was twelve miles a day.

A year or so later the "Iron Horse," began the vogue of railroad pictures. There aren't any statistics on the number of night mail trains that have raced through the night to save somebody or other, or how many limiteds have toppled off broken bridges. "The Night Mail," "The Shanghai Express"—the list of railroad pictures is long. This month it was topped with the story of the stream-lined train, "Silver Streak."

From the drama of twin rails the trend switched to the story of the great open spaces of the sky. There too was written into screen history a great story of pioneering. "Night Flight" was its title, and it told with tense realism the tale of man's supreme effort to conquer the black, uncharted lanes of the night skies, and establish commercial night flying.

But all great pictures aren't made predicting death or broken hearts. A year ago a director with a sense for entertainment in its purest form took a simple though not very new story, an actor and actress who could understand the mood, added some clever lines, and produced a masterpiece. It was called "It Happened One Night," and with it the buses made their debut in a feature role. The history of buses in the movies is brief, but glorious. They were the background for the most appealing thing that ever came in front of a camera (or anything else)—Claudet Colbert in her boy friend's pajamas stepping around the end of the fatal blanket. (Walls of Jericho.)

BUT trucks—the movie moguls shook their heads. There was no drama in trucks. Romance doesn't flower in the shadow of a 10-ton six-wheeler. Even one of the new tank jobs, lousy with chromium, and with stream lines ever so chic wouldn't do. Why? Well, trucks simply didn't have "it".

Of course, the big boys in Hollywood forgot that one of the 10 greatest pictures of movie history was at least indirectly the story of trucks—"The Big Parade." What made up that parade? Trucks. What makes up the communication system of any army? Trucks.

Above are Hollywood's conceptions of personalities in the trucking industry, as typified in the movie, "St. Louis Kid": (1) Patricia Ellis plays Dorothy Dare, typical sweetheart of a typical truck driver (2) James Cagney; (3) Allen Jenkins is "Buck," typical driver's helper; (4) the driver gives his girl a sissy kiss—untypical of a typical truck driver; (5) two pretty hitch-hikers join driver and helper to make a full load. What's the name of that road?

Remember that long, lone line of moving objects that was one of the feature shots of "The Big Parade?" What were those things that rolled across the low hills of France? Trucks—trucks going to the lines with men, and coming back with pieces of men.

But nobody ever thought of "The Big Parade" as a trucking picture. Possibly it wasn't—not in the same sense that it was a war picture. So the trucking game remained one of those places where things don't happen—at least the sort of things that interest Hollywood.

Then one day Warner Brothers went hunting for a story to feature their hard-hitting star, James Cagney. Somebody dug around in the back files of Colliers, and discovered a story about a trucking company and a milk strike. The gray beards of filmdom shook their heads. There might be drama in a milk strike, but not in trucks.

Finally, however, they relented and the picture was produced—with regrets. It was titled "The St. Louis Kid." And it clicked. That mysterious person John Moviegoing Public liked trucks. He laughed, and got mad, and generally had a great time at the show. The producers awoke to the fact that they had been missing something in the line of dramatic settings.

"Trucks," they said, "we want trucks. Bigger trucks. Better trucks. Faster trucks. We want our trucks to carry dynamite, run off a cliff and blow up a dam. Take that down, Eddie! You

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THIS article reviews the findings of the National Safety Council's special investigation of driver fatigue as a cause of accidents.

One of the findings was that trucks account for 31 per cent of the fatigue accidents.

In ascribing causes for fatigue the report points particularly to the many owner-operated trucks and to the many managers of motor carrier concerns who "have little idea and no records of the waiting, loading, working and resting that uncomplaining drivers do."

A weary head—and woe in the offing

Exhaustion Exacts a Tiny Toll in Traffic

Less Than 1 Per Cent of Accidents Is Traceable to Driver Fatigue But Employers Must Shoulder Responsibility

ACCIDENTS are the result of a variety of causes, most of which have been given careful study. But not until now has the subject of driver-exhaustion or driver-fatigue been studied as a cause of accidents. The National Safety Council conducted a series of studies into accidents caused by drowsiness and exhaustion at the wheel. The information was collected late in 1934 and was written early in 1935 by James Stannard Baker, secretary of the Committee on the Driver, and Oscar M. Gunderson, engineer, under the general supervision of Sidney J. Williams, Director of the Public Safety Division, National Safety Council.

As a result of the study it was found that (1) Many motor accidents occur because drivers fall asleep or become so tired that they cannot drive safely. (2) Fatigue or sleep accidents are more likely to occur to truck drivers than to passenger car drivers. (3) Drowsiness is often complicated by such factors as alcohol and carbon monoxide. (4) Long hours at the wheel and excessive waiting before trips affect wakefulness. (5) 42 states and the District of Columbia have laws limiting hours of duty, but enforcement is lax. (6) Violations are most common in long-haul for-hire trucking, particularly among drivers owning their own trucks. (7) Total hours on duty, including periods of waiting and loading, are as important as the length of time at the wheel. (8) Dangerously long hours can be avoided by adjusting schedules on long hauls, good maintenance and preparation for emergencies. (9) Most of the well run truck fleets and many individual truck owners have already adopted safety measures. Enforced legislation may have the effect of reducing competition from trucks whose drivers are working excessively long hours.

THE inquiry began with a study to determine how many and what kind of accidents are caused by staying "Too Long at the Wheel," the title of the report. The best data were obtained from the reports of about a dozen states mostly along the Eastern Coast. Accidents due to fatigue varied from 0.5 per cent in North Carolina to 5.1 per cent in Illinois with a general average of about 1 per cent. On the basis of one accident in a hundred being reported due to falling asleep at the wheel, and 2,000,000 motor accidents reported annually, a guess would put the number of accidents due to fatigue at 20,000 yearly.

Not all of these accidents, however, are caused by trucks. Passenger cars come in for their quota. Driver-asleep accidents involving trucks may vary from 18 per cent of the total in Pennsylvania to a reported 100 in Connecticut. The average is 31 per cent. However, it is assumed as a result of the study, that driver-asleep accidents are more likely to occur to drivers of commercial vehicles.

What are the circumstances surrounding a driver asleep at the wheel? The great mass of driver-asleep accidents occur in the early morning hours.

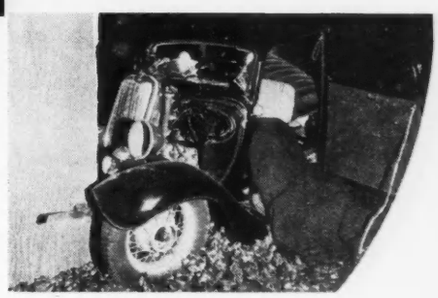
All fagged out because he was too long at the wheel following a long period of waiting and loading. Most operators know they can get better work out of their drivers by requiring them to get adequate rest

This may be attributed to the fact that a driver has been at the wheel of his truck since the preceding day or at least since late the preceding evening. An all-night run is pretty monotonous, the driver's senses become numb in the early morning, he nods, and—crash! Interesting facts revealed by the report are that private drivers show an increase in asleep-at-the-wheel accidents in the afternoon, probably due to the effect of midday warmth and full stomachs. According to the safety council's report, about half of the accidents occur in straight highways—the straight run is dangerous—has the effect of lulling a driver to sleep. A quarter of the accidents investigated occur at intersections, a sixth at bridges and one in 13 on curves. When a driver sleeps at the wheel his truck is likely to collide with another vehicle in about 30 per cent of the cases, with posts or trees in 20 per cent, with railings or abutments in about 20 per cent, the car goes into a ditch in about 18 per cent and overturns in about 10 per cent; but it almost never runs down a pedestrian.

Among all accidents in which somebody is hurt, 6.9 per cent result in a death; but among accidents involving a sleeping driver, the death rate is 12 per cent. Cold figures on driver-asleep accidents don't begin to tell the story. Their severity is most frightful. There is no chance to apply the brakes or try to dodge. The vehicle simply runs head-on under full power into the crash. Just how it happens is readily understood from the following account:

A TRUCK driver had been all night and morning on his way East from Chicago. It was warm for November. In midafternoon he passed through a small town and settled down to a stretch of straight road. There was nothing about the stretch of road ahead of him to keep his senses alert. A flat stretch—hot concrete underneath—mile on mile. Soon he dozed. Up ahead, a school bus stopped in the road. The truck continued going. With a rending crash the nose of the truck buried itself into the rear of the bus. Seven children were badly injured.

On another run a truck driver was in the habit of taking an extra trip after finishing his regular day's work. He was tired and bored. He napped a moment. The truck approached a gentle curve, kept going ahead and brought up against a tree with such force that the load of lumber he was carrying slid forward and pinned him in the cab. The wreck took fire and the driver was cremated alive.



Passenger cars come in for a 69 per cent share of driver-asleep accidents

The question now in our minds is—"Why do drivers drive until they fall asleep?" The reasons are numerous. Among truck drivers, some of the

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KEY TO SYMBOLS IN SAFETY CHART

BRAKES

A - Adequate to control the movement of and to stop and to hold such vehicle, including two separate means of applying the brakes, each of which shall be effective to apply the brakes to at least two wheels and so constructed that no part which is liable to failure shall be common to the two.

B - Adequate to bring such motor vehicle or combination of vehicles to a complete stop when operated upon dry asphalt or concrete pavement surface where the grade does not exceed one per cent, and when operating at speeds set forth in the following table within the distances set opposite such speeds.

C - Adequate to control the movement of and to stop and to hold such vehicle, including two separate means of applying the brakes.

D - "Adequate"; "Sufficient to control"; "Efficient"; "Serviceable".

E - "Two or more sets of independently operated brakes".

F - Unlawful to operate vehicle if brakes "defective or out of order".

G - "At least two braking systems, each with separate means of application, each operating directly or indirectly on at least two wheels."

H - "At least two independent and effective brakes."

I - "Two sets of adequate brakes."

J - Unlawful to operate unless "all its vehicle wheels.....are equipped with effective brakes which can be operated from the seat on such motor vehicle by the driver."

K - "Two independently operated brakes controlling the wheels of one axle."

L - Trailer or semi-trailer brakes operated by driver.

(1) So constructed if unit becomes disconnected brakes lock automatically.

(2) Combinations must have brakes on one or more of the units adequate to stop within distances specified by department.

(3) Applies only when gross weight exceeds 4,000 lbs. or speed exceeds 10 m.p.h.

(4) Not required unless net weight exceeds 1,500 lbs.

(5) Having four or more wheels and net weight exceeds 4,000 lbs.

(6) Does not apply unless capacity exceeds 1,500 lbs.

(7) Power brakes required on semi-trailers if gross weight per axle exceeds 7,000 lbs.

(8) Required on every wheel.

(9) Not required if net weight under 3,000 lbs.

(10) Required if capacity exceeds 2 tons.

(11) Applies when over four wheels or gross weight exceeds 8,000 lbs.

Inspection required by statute - not "Periodic Inspection" law.

(A)- The following stopping distances are specified:-

California -

MILES PER HOUR	STOPPING DISTANCE
10	9.3 feet
15	20.8 "
20	37.0 "

District of Columbia - Footbrake - at 20 m.p.h. - 50 feet
Handbrake - at 20 m.p.h. - 75 "

Trucks - 1-1/4 ton capacity or under same as above; over 1-1/4 ton capacity must stop within 40 ft. from 15 m.p.h. upon application of either brake.

Louisiana - All vehicles or combinations must stop within 45 ft. from a speed of 20 m.p.h.

Michigan - Stoppage with 40 ft. from 20 m.p.h. considered adequate.

Minnesota - Must stop within 40 ft. from 20 m.p.h.

New Hampshire-

Four-Wheel Brakes	Two-Wheel Brakes
at 10 m.p.h. stop within 6 ft.	at 10 m.p.h. stop within 10 ft.
at 15 m.p.h. stop within 12 ft.	at 15 m.p.h. stop within 21 ft.
at 20 m.p.h. stop within 22 ft.	at 20 m.p.h. stop within 37 ft.
at 25 m.p.h. stop within 35 ft.	at 25 m.p.h. stop within 58 ft.
at 30 m.p.h. stop within 50 ft.	at 30 m.p.h. stop within 83 ft.
at 35 m.p.h. stop within 68 ft.	at 35 m.p.h. stop within 113 ft.
at 40 m.p.h. stop within 89 ft.	at 40 m.p.h. stop within 148 ft.
at 45 m.p.h. stop within 112 ft.	at 45 m.p.h. stop within 188 ft.
at 50 m.p.h. stop within 139 ft.	at 50 m.p.h. stop within 232 ft.

Oklahoma - Must stop within 45 ft. from 20 m.p.h.

Oregon -

Miles Per Hour	Stopping Distance
10	9.3 feet
15	20.8 "
20	37.0 "
25	58.0 "
30	83.3 "

Pennsylvania- Service brake within 50 ft. from 20 m.p.h.
Emergency brake within 75 ft. from 20 m.p.h.

Texas - Must stop within 45 ft. from 20 m.p.h.

Virginia - Footbrake within 25 ft. with four-wheel brakes; within 45 ft. with two-wheel brakes from 20 m.p.h. handbrake within 75 ft. from 20 m.p.h.

Washington - Trucks and combinations must stop as follows:

Miles Per Hour	Stopping Distance
10	9.3 feet
15	20.8 "
20	37.0 "
25	58.0 "
30	83.3 "

CLEARANCE LIGHTS

(B) Located at approximately 1/3 points of length.

(C) White, green or yellow light to front; red to rear.

(D) White or green to front; red to rear

(E) White or green to front and rear.

(F) Must be placed at intervals of not over 20 ft. on each side.

(G) Green to front; red to rear.

(H) One on each side.

(K) On front and rear corners.

Color and design approved by Industrial Commissioner.

@ - Reflectors also permitted.

M - On buses front is green, rear is red.

N - Commissioner may require.

O - On combinations rear light required only on last vehicle.

(P)- Both display white to front and red to rear.

Q - Visible from both sides.

T - Also when vehicle exceeds 84 in. high.

U - Except two-wheel trailers 1,000 lbs. capacity or less.

MIRRORS

1 - Persons with less than 2% normal hearing must have mirrors located to show traffic to rear.

2 - Commercial motor vehicles and passenger carriers for hire.

3 - Commercial motor vehicles over 1/2 ton capacity.

4 - Taxicabs, commercial motor vehicles, trucks, trailers.

5 - Commercial motor vehicles not equipped with pneumatic tires.

10 - Commercial motor vehicles and trucks.

11 - Trucks and buses.

12 - Trucks.

13 - Commercial motor vehicles.

ø - When "so constructed or loaded as to prevent..... view of highway to rear".

REFLECTORS

XX - Commissioner may decide.
ZZ - At approximately 1/3 points of length.
@ - Clearance lights also permitted.

SAFETY GLASS

AA - Any passenger carrying vehicle operated for hire.

BB - Operated by Capital Traction Company and Washington Railway and Electric Company.

DIRECTIONAL SIGNALS

DD - When so loaded or constructed as to make hand signal invisible.

EXHAUSTION EXACTS A TINY TOLL IN TRAFFIC

(Continued from Page 33)

causes have been given. Usually it is fatigue. Too long at the wheel. Commercial car drivers not only put in more miles but they are subjected to exhausting runs, not once a year or once a month but once a week or every day. There are other causes. But to list them is impossible. There are too many one-truck owners; there are too many managers of highway transportation who have little idea and no records of the waiting, loading, working and resting that uncomplaining drivers do.

PRIVATE trucking, the report states, subjects drivers to less fatigue than the hauling of general merchandise. This is because the greater part of it is done by companies whose truck drivers are scheduled for specific runs the length of which is usually predetermined. Even these businesses have emergency situations when drivers become fatigued. An emergency may be caused by a holiday, a sale or an unexpected breakdown. It is assumed that the latter cause is seldom a problem because of intelligent preventive maintenance in orderly fleets.

Typical businesses having difficulty in regulating driving hours, and are therefore subject to serious driver-asleep accidents are: (1) oil companies which must make long runs; (2) dairy companies making a haul from a collecting point to the city; (3) farmers who own trucks go to extremes to get produce to the market. This group usually works all day, starting at five in the morning, take a load to the market that night, unload early the following morning and return before noon—if they don't nap at the wheel; (4) coal haulers who make long hauls from the mines.

It is when private drivers are hauling goods for other companies that the most chance is taken. These drivers try to get as much work as they can while the getting is good. Time to sleep is when business is slack. As a result many of them run dangerously to the point of fatigue—and sleep. However, in all cases the general reason for driving too long are: first, emergencies; secondly, financial motives. Typical of these are the special emergencies which occur in department store delivery. A financial motive is when a company pays its drivers on a mileage basis and drivers are urged to go the limit. Most pitiful are those cases in which a couple invest life savings in a truck, go into the freight hauling business, and there is no business. A typical case is a couple who drive between New York and Chicago. Their address is "en route." They pick up a load, deliver it, and wait for a return load. If the truck is full they sleep sitting in the cab. If empty they sleep in the van. Sometimes on cold nights they stop at a tourist camp. They are in their clothes a week at a time; know that a break down will ruin them; hope no such thing will happen and that business will pick up so that the man can get a decent job. If that driver ever falls asleep at the wheel due to lack of proper rest, well . . .

What are the provisions trucking companies make for resting their drivers? In trucking confined to the city, drivers usually rest at home. It is over-the-road hauling that becomes an important factor in fatigue accidents. Information gathered, in some cases by stopping trucks and questioning drivers, reveals that in half of the cases drivers rest "on the truck." Very few have sleeper cabs, which means drivers must sleep sitting up or stretched out on the seat. Other drivers report they sleep at home, some in hotels, camps, bunk houses, farms, boarding houses, etc.

In general sleeper cabs are in favor among owner-drivers, but are frowned upon by trucking companies which own the equipment and employ the driver. Within recent months many gasoline stations have established small bunk houses for drivers. They are usually connected with lunchrooms where the drivers may get a bite to eat. Some such places make no charges for sleeping, and are fairly clean. Some drivers have been known to take the precautions of bringing their own bedding.

MANY companies instruct drivers to pull to the side of the road wherever they feel tired and rest. The trouble with this is that most drivers are afraid their employers may think they are dallying if they rest for any appreciable length of time. A typical case is a certain interstate moving company. The driver reports at six in the morning to get his assignments. He picks up his load, usually by 9 a. m., and starts for New York. He arrives by one, unloads by three and then proceeds to a point for a return load. He is ready to return by six or seven, gets back after midnight. He has been waiting, loading and driving for 18 hours during which he took an hour and a half in all for eating and rest. He repeats this day after day. He can't rest too long because he usually has to make a delivery schedule. Then how rest from fatigue?

LEGITIMATE provision for resting would help reduce asleep-at-the-wheel accidents. Some companies have a special room at a modest hotel or rooming house and require their drivers to check in and out to assure that they get their rest. Provisions for sleeper cabs and helper-drivers on long hauls to relieve the regular driver would eliminate much of the danger of driving fatigue. Legislation would also help, the report declares.

But legislation has not had much effect on companies with trucks for private hauling or the great mass of those doing intra-city for-hire trucking. It will, however, put a crimp in the public chance-taking of truckers who are not wise enough to do this of their own accord.

Within the last four years an attempt has been made in 42 states and the District of Columbia to limit hours when drivers of certain trucks and buses might be on duty. In some states, legislation requires drivers to rest after a certain number of hours at the wheel. Such legislation is defeated even in cases where drivers are specifically required to rest "away from the truck." Worst of all, many truck drivers and owners do not even know that such laws exist!

Methods of enforcing "rest" laws are as follows: awaiting complaints, questioning drivers, inspecting trip records, checking trucks at certain points and trailing. All such methods are only half effective. Some states require trucking companies to fill out records of runs made. These records don't preclude incorrect statements. Kansas has "port of entry" stations to collect taxes and officials have the opportunity to check drivers then.

Delaware issues cargo slips with the time trucks passed, the time and place of starting, destination, etc., and the slip is given up to the authorities when the driver enters the state again. If this is too soon after the previous trip, the driver is refused entry into the state until such time has passed as is required.

The general recommendations con-

(TURN TO PAGE 48, PLEASE)

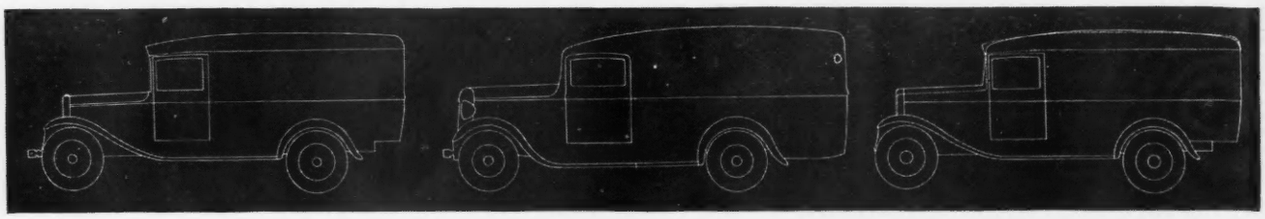


Fig. 1 Fig. 2 Fig. 3

The beautifully finished truck innocent of headaches it caused in the making

The Birth of

LIKE TOPSY, THE NIFTY DESIGNS

But Before the Sales Is Answered, Designing ceive Quintuplets That

THIS is a behind-the-scene drama (modern style) of what actually happens in producing a truck. It begins when the management gets that "let's build-something-that-will-knock-their-eyes-out" itch, and follows through from the first conception to the time the finished truck leaves its incubator as an actuality. The reader will learn from this absorbing story

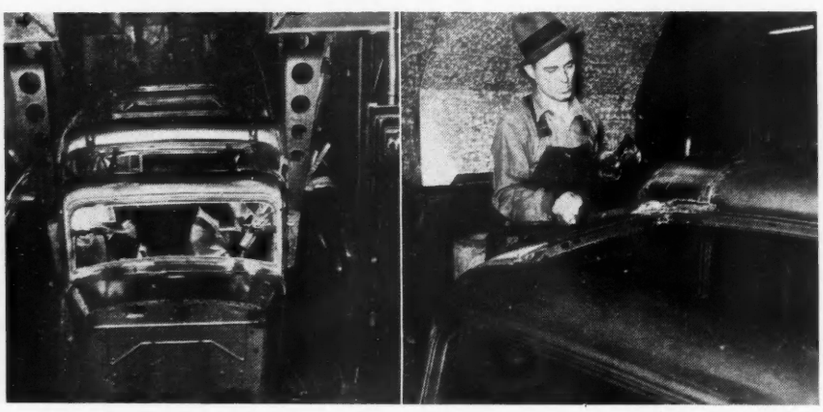
By ATHEL

A NEW truck line or even a single model, particularly a highly successful line of trucks (like Rome), doesn't come into being overnight. It's not a matter of weeks either, but of months, and —yes, years of painstaking design-building, analysis, tearing down again, starting over and over until finally there emerges something that begins to look like the answer to the sales department's prayers.

Perhaps as good an illustration of this as any was the development work that preceded the introduction of the 1934 line of Dodge Brothers' trucks and commercial cars, and perhaps no single model of that line dramatizes as well the tremendous success of Dodge Brothers' comeback in the truck field this year, as the double-level panel delivery.

Let's forget all the work that went into the chassis, the engine, and the accessories both in the engineering and production departments, and consider only that particular body type. For Dodge, the development of that unusual, and beautiful, commercial body model resulted (in cold figures) in an increase of 270 per cent in panel business in 1934 over 1933.

Certainly a part of this spectacular increase in business was due to price.



Left—Giant fingers hold various panels of the body together in a jig as workmen weld them in a unified whole. Right—Depressions are filled in with liquid metal

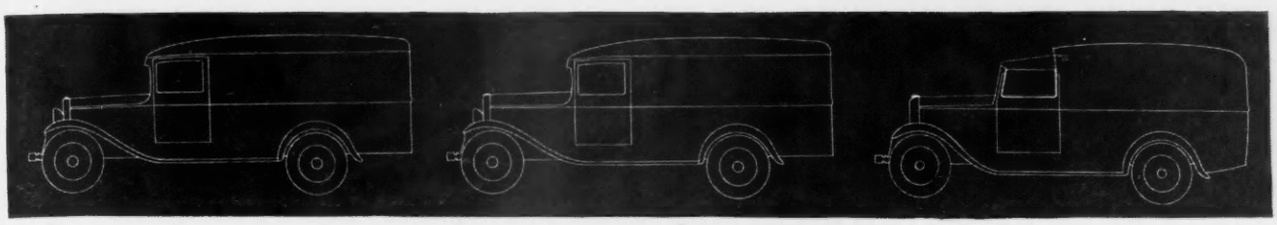


Fig. 4 Fig. 5 Fig. 6

The body goes through the paint shop and finally drops on the chassis

a Truck Model

OF THE INDUSTRY "JUST GROW"

Department's Prayer Engineers Often Con- Never See the Light

the infinite work entailed in bringing out a successful truck design. One act; many, many scenes.

Dodge's double level panel delivery was chosen to serve as the industry's interesting example because it was the most distinctive and popular design developed during the late depression, and because the development work it entailed is typical.

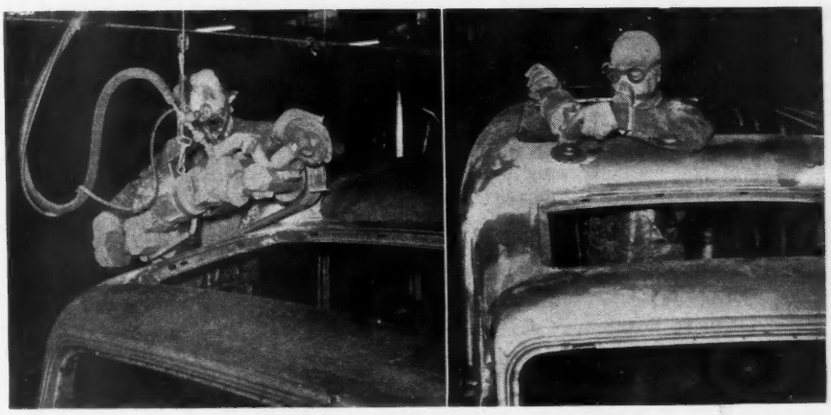
DENHAM

But price was part of the design problem. The trucks couldn't have been sold profitably at prices which for the 1½-ton panel are lower than at any time since 1932, unless they had been so designed. And that doesn't mean chiseling to get the price down. It means—but we are getting ahead of our story.

THE beginning of that typical story of truck production is somewhere around the fall of 1931. It was beginning to be apparent that the depression wasn't over and Dodge Brothers' truck sales, like everybody's else, were headed for lower levels, as far as the management could see.

Perhaps it took a lot of nerve to start a major program at that time. If it did, the management of Dodge Brothers had it. Dodge wanted to "come back" in the truck field. When business once more started on the upgrade the engineering department should be ready with, and the factory ready to go into production on, a line that would once more put Dodge back among the "big three," outstanding in design and competitive in price.

It was in January of 1932 that the work began. In the case of the panel delivery, Fig. 1 shows an outline sketch



Left—Then come the masked "rough finisher" with his grinding machine. Right—Smaller grinding wheels touch up the inequalities in the metal

of the model that was then being built. The process of designing a new line would have included normally an attempt to save as much as possible out of the old, particularly in the way of stampings, which otherwise would have required new dies.

That wasn't the method of attack in this case, however. The engineering department was given a free hand. Nothing was to be saved or retained. The model was to be designed completely from the ground up. The work took the form of both drawings and "picture drawings," as well as models built to one-eight actual size.

Fig. 2 shows an example of what was arrived at, certainly an attractive delivery model, modern in every respect. But there was a catch in it. When the estimators get busy they found that the cost of tools and dies was so high that the new model could not have been sold at the desired low price.

SO for the time being that program was dropped, and the job attacked from a purely cost basis in an attempt to rework and redesign the then current model. Space doesn't permit going through all the various abortive attempts to lick the problem this way. Fig. 3 shows one of the early trials. It shows an outline drawing of the current panel on which has been overlaid a new modified design, with such changes as an increase in the curvature of the roof, elimination of the sharp corner at the front of the body at the roof line, and the use of a higher hood.

IT wasn't a bad-looking job, but its chief drawback was that it didn't have enough loading space—at least it didn't have as much increase in space as the management wanted.

Fig. 4 was an attempt to answer the space problem, again keeping the cost of change-over down. It had the same front end as the current model. The lower half of the cowl was also unchanged. The windshield post and doors were new, however, and there was a lot more headroom.

The trouble was that the model appeared out of proportion. The belt line was too low, and the body looked top-heavy. Raising the hood line, as shown in Fig. 5 helped the proportion, but the belt was still too low (due to location on the original body stampings). The truck still looked somewhat top-heavy, and in the final analysis the cost involved for the change-over, considering the small gains, did not seem worthwhile.

So, after a while, that method of attack was abandoned, and the designers went back to the original layouts—those for a completely new panel delivery. Some more changes were made with the idea of bringing the cost down. One of the expedients was to change the front-end design in such a manner that it could be used for all Dodge truck models—from the cab on up to the light heavy-duty chassis. Full size models were built on this basis, but when they were completed they were found to be open to two major objections.

In order to make the front end of the body do for all models, the roof had to be curved downward too sharply from the high point required for loading space, and the model as a whole, instead of appearing gracefully streamlined looked more like heavy-duty panels such as three or four ton trucks instead of 1½ ton. Unfortunately no drawings of these attempts are available in the records of the engineering department. Practically all of this phase of the work was done on a full scale model, subsequently destroyed.

It wasn't until this point was reached, that the basis for the final idea was formulated—a combination of dies designed for passenger car stampings, together with new stampings for the truck body proper. It was almost as a last resort that decision was reached to see what would result from a combination of the complete passenger car body front-end, including doors, with a panel of the required dimensions and of a totally new panel design.

HOW to do this was the big problem, and it became apparent rather rapidly on a study of loading heights and widths, that the only way out was by putting a step in the roof and in the body sides of the compartment back of the driver's seat.

It didn't sound like a particularly attractive design, but it was tried on full scale blackboard layouts. At an earlier period in the various stages an experimental delivery model with a sliding roof over the driver's seat had been laid out—shown in Fig. 6. This model also had part of the passenger car front-end, but with a sharp roof header corner at the front. It had never been considered seriously, apparently, except perhaps as a possibility for "custom production," but it did show the attractive possibilities of the idea.

From that point on, design work was largely a matter of detail. Of course the first job didn't look right. It looked like a two-piece body assembled out of mismating parts, but after a while by modifying here and there it gradually began to take its final form on the blackboard, where the model was being designed to full scale.

Finally there came the time when at a conference of engineering production and sales departments the job was given its "OK." The work of getting the model into production could begin. More headaches, more conferences, modifying here, changing there, to make the engineering design feasible for production in large quantities. We won't go through the difficulties in detail.

THE major difficulty in production was that the body and cab panels had to be integral, particularly as far as the roof panels were concerned. The step introduced stamping difficulties. It was found necessary to increase the radius slightly at the curvature for the step to permit drawing the metal to correct shape without its cracking or tearing. It was also decided that a separate splash guard was needed to facilitate production. This had to be worked out.

Jigs had to be constructed, for the virtually all-metal bodies. Dodge decided to put its truck body manufacturing operations on a progressive basis, so production time had to be studied and changed to time the rate of body production to the rate of chassis assembly.

Finally everything was ready and in 1933 the models were put into production. The rest of the history is too recent for repetition here. The job of the design department was done. It turned its attention to designing what would be needed a year, two years, and three years later.

Asked about colloidal graphite Racedriver Shaw didn't say "Pshaw" . . . he gave a testimonial

COLLOIDAL GRAPHITE

WHAT IT IS AND WHAT IT DOES

By HENRY JENNINGS
Technical Editor, Commercial Car Journal

COLLOIDAL graphite as a term may be tough on some tongues, but as a lubricant it's supposed to be mighty easy on an engine. That's why under its many brand names it is attracting the interest of fleet operators. And that's why we give you here a brief sketch of what it is and what it is supposed to do.

If you want more literature on the subject just check the letter "B" on the postcard, page 72.

Have you had any experience with colloidal graphite? If you have, please write us the details. We'd like to print them—and thus with your help perform a real service to 25,000 fleet operators. Help the others now and a time may come when they'll help you.

WE are snorting down the backstretch of the Indianapolis track at considerably better than 100 miles per hour. It is Independence Day and the country's biggest race is 415 miles old. We are in the money and we hope to hold our position or better it. Certainly we have no desire to pull into the pit for any reason at this stage.

One more lap and we are still going strong. But wait a minute. Has the long ride and unusual strain on our nerves affected our eyes or is the oil pressure gage really fluttering? Our eyes are still dependable. The gage *is* fluttering. One more lap and the gage has returned to zero and does not even flutter from that point. A stop at this time would just about put us out of the running so we continue on. Eighty more miles.

Our better judgment tells us to stop but our driver either does not have our superior judgment or he knows something about this car that we do not. Well, when we begin to spray a large area around Indianapolis with pistons, pins and rods he will concede that we are right. However, there is a lot of money at stake and he continues on without any particular reduction in speed. We grit our teeth and close our eyes. We open them just in time to see the flagman give us the green flag. One more mentally painful lap and then the checkered flag, the safety lap and then we pull up. Our feet are cooked. We get out and wabble around a bit and then examine the hood. It is burned from a nice cream color to a dark brown from the heat. We pull out the oil depth bayonet and it shows that there is no oil in the crankcase.

THE year of our ride was 1933, and our driver who did not have our superior judgment and as a result finished second, having traveled 80 miles at an average speed of 95 miles per hour without any oil in the engine, was Wilbur Shaw.

When we asked Mr. Shaw how he accounts for this phenomenal performance we get the laconic reply, "Colloidal Graphite."*

While this was a particularly severe

(TURN TO PAGE 48, PLEASE)

* Note: This is an actual incident that happened during the 1933 Indianapolis Race in which Wilbur Shaw finished second. Mr. Shaw supplied Commercial Car Journal with the facts.

Chevrolet Shapes Up Its

Top—New standard sedan delivery. Above—131-in. wheelbase 1½-ton panel delivery job

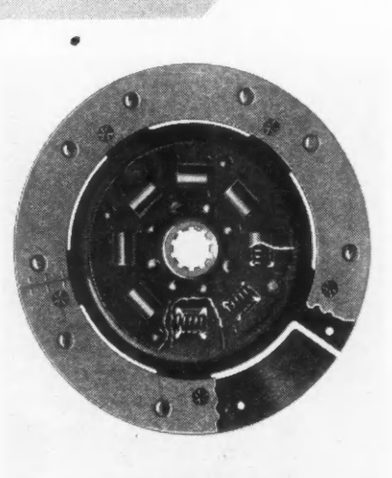
THE new Chevrolet 1935 models are here. In addition to the new ½ and 1½-ton models a new sedan delivery unit has been added to the line. All models have pressure-jet engine lubrication, improved braking, tin-plated pistons, greater horsepower and torque with better torque characteristics and better clutch action made possible by the use of a newly designed driven plate.

While the ½ and 1½-ton models retain the general layout and design of previous models many refinements and features have been added notably in the engine.

Among changes to be noted in the engines of all models are improved spark advance control, improved crankshaft counterweighting and harmonic balancer, selective balancing of rotating parts, increased oil pump capacity, greater water pump capacity, and improved cylinder-head temperature distribution.

In both the ½-ton and 1½-ton models efficiency has been increased. Lighter pedal pressure, higher coefficient of friction in the lining, limited articulation of reverse shoes, and increased life of reverse linings are featured. In addition, the 1½-ton models include larger diameter front brakes, larger linings, stronger anchor plates and shoes, increased mechanical advantage of brake linkage, stronger and more rigid linkage, more rigid pedal, larger cross-shaft, and stronger cross-shaft levers.

IMPROVEMENTS in manifolding, carburetion, timing and valves, through the adoption of the Chevrolet Blue Flame engine, has resulted in a horsepower capacity of 70 in the 1935 trucks, a gain of 10 hp. Maximum torque, formerly 146 lb-ft. at 1000 r.p.m., is now 150 lb-ft. maintained through the range of 1000 to 1400 r.p.m., corresponding to 17 to 24 m.p.h.



Waved clutch driven plate for ½-ton models which takes up the load without chattering

HOLLYWOOD FINDS THAT TRUCKS HAVE "IT"

(Continued from Page 31)

know the miniature dam we had for that other picture—the picture where the boy fell in love with the girl—well, use that dam."

So now they are yelling, and scurrying, and sending location managers out to look over terminal docks and trucking equipment in and about Los Angeles. In the end they will get some monstrous trucks with enough chromium to make the oil companies green with envy, and the drama will wear thin. It is always so. But that is another story.

"THE ST. LOUIS KID" is built around the operation of a long haul trucking company, running between St. Louis and Chicago. The name of the company is the Tri-State Trucking Corporation. During the entire picture only two trucks are seen, but from the fancy office of the company there must be a lot more hiding around some place. The trucks—both of them—are heavy duty, six-wheel jobs with the load conveniently tarped to save the technical director from scratching his head over an appropriate cargo.

Cagney plays the scrappy, trouble-hunting driver who keeps the company in hot water. To that extent the picture has admirable realism. This type of driver, combining a sure touch on the wheel with a good left—which he uses too often—is one of the insoluble problems of the trucking business.

Romance enters the picture when Patricia Ellis telescopes her ancient Ford under the tail board of the truck which Cagney is driving on his run to Chicago. It all happens just outside of a three-quarter horse-town called Ostopolis. Cagney ends in the Ostopolis jail. He talks his way out by playing on the judge's sympathies for the local farmers who are being ground under the heel of the big, bad milk trust.

In an effort to smash the trust the milk farmers go on strike and barricade all roads leading to the city. Cagney and his assistant driver, who supplies much of the comedy relief, are given a truck load of milk to run through the picket line. At a barricade Cagney gets in one of his usual fights, and is hailed before the same judge in Ostopolis.

The judge recognizing the man who had so recently pleaded the cause of the milk farmers, claps Cagney in jail on the charge of aggravated hypocrisy. While in jail he steals the key from the sleeping jailer and forcibly takes Patricia Ellis to a dance.

Meanwhile the milk strike is getting out of hand. In desperation the milk trust, against the protests of the manager of the trucking company, puts gangsters on the milk trucks. During a fight one of the gangsters shoots down a farmer. At the time of the shooting Cagney was out of jail, riding around with Patricia Ellis. On circumstantial evidence he is accused of the murder, Patricia, the only person who can clear him of the charge, has been kidnapped by the gangsters.

Cagney escapes, gets hold of a Tri-State truck, and by some fast work catches the real murderer, and frees Patricia. There is a fine free-for-all in which the night crew at the Tri State dock cleans up on the gangsters. It's really a swell fight.

There is some good comedy in the show; Cagney has a chance to play his favorite type of role; and there is enough action to make it a thoroughly entertaining picture. Al Jenkins, Cagney's helper, looks more like a typical driver than Cagney. Charles Wilson, as the head of the Tri State claim department, will make any driver practice his stories for the next time there's a case of Scotch missing off his truck. Of course, the office of the company looks a bit like a New York broker's suite in the days when the gilt hadn't worn off the edge of most stocks, but it may have been designed from a fleet owner's idea of paradise. All in all, Warner Brothers dealt fairly with the trucking game. They made its debut into the celluloid world an honorable one.

Since the production of the "St. Louis Kid" several other studios have gotten the truck picture bug. Columbia has a trucking picture on the fire. It deals with two rival trucking companies fighting for a contract. The crooked trucker drives the hero off the road with a truck load of dynamite. and if you think that's fun, just try it some time. The Richards Trucking company of Los Angeles will probably be the location for the picture, which is tentatively titled "Devil's Cargo."

ONCE the prejudice against trucking themes has been removed, a gold mine of new plots and locations will reward the producers. There is the story of the mystery load. Also, there is the unwritten drama of the man who has to dump his valuable load so he can use his empty truck to carry men and women out of a fire-ringed valley. A good story could be woven around the old, old war with the wild cat trucker. There might even be a ghost truck. And last and greatest there might be a true saga of the trucking game.

Buses had their day in that delightful picture "It Happened One Night" with Clark Gable and Claudette Colbert

Then there is another, more human sort of drama. There is the chivalry of the road which causes one driver to stop and help another in trouble, even if they drive for rival companies. There is the old humorous battle between the drivers and the claim department—like the never ending war in newspapers between the editorial and composing rooms. There is the work of the shop crews on which the lives of the drivers depend. There is much of drama, of laughter, and of tears.

Whenever a business becomes a tool of the dramatist that business assumes a new dignity in the eyes of the men who are associated with it. An *esprit de corps* is developed. It was so with the railroads and the air lines. It will be so with the trucks. The ice has been broken. The day will come—and it may not be far off—when the trucks will have their "Night Flight." It will be a true, human story of the drama behind turning truck wheels—and it will take its place with the few great pictures of all time—we hope.

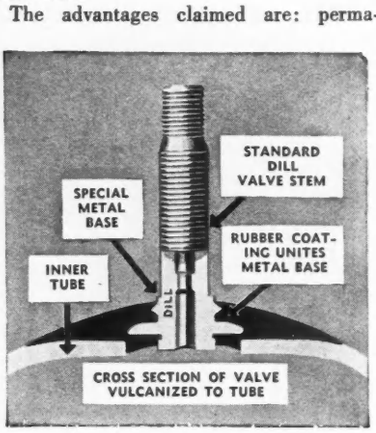
New Products on Parade

Descriptions of the Latest Items Put on the Truck Market by Equipment and Specialty Manufacturers

Dill Tire Valve Stem

INSTEAD of being clamped into the tube by a lock nut as customary, the new Super Seal Valve Stem is vulcanized into the tube, making the tube and valve stem one complete unit. This is possible by a welded rubber and metal base on the valve stem.

The advantages claimed are: permanently leak-proof base: maximum durability to withstand strain and chafing at the rim hole; fits any rim without alteration of the rim hole; readily pulls back into rim well when tire goes flat so that valve will not be torn from the tube; easy to inflate and gauge. Information can be secured by writing The Dill Mfg. Co., Cleveland.



Tire valve stem

Clutch Rebuilder

THE Perfection Clutch Rebuilder No. 4 is the latest piece of equipment to be placed on the market by the Perfection Gear Co., Harvey, Ill. This complete machine will enable car dealers and repairmen to rebuild clutch cover assemblies of Fords, Chevrolets, Plymouths and many other cars, including Chrysler, Dodge, Nash, Pontiac, Olds 6, Willys-Knight, and International Truck.

Perfection clutch rebuilder

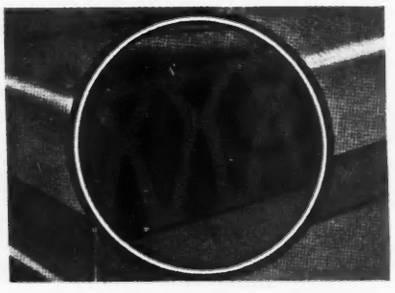
The surface plate is 12 in. in diameter, and can be bolted to any work bench. The equipment can be purchased separately at $15 through the Perfection Jobber, or can be bought in combination with a stock of Perfection Certified Parts for rebuilding clutches.

Mercury Vac-A-Meter

THE Mercury Vac-A-Meter is designed for the motor service shop interested in giving efficient tune-up service. The instrument gives a perfect picture of the troubles that cause improper vacuum pull in the manifold leading to the carburetor. The instrument and stand is 6 ft. 4 in. high, 6¼ in. wide. The mercury column when the tests are being made may be seen from many feet distance. Complete instructions and information from Stromberg Motoscope Corp., 2130 Lawrence Avenue, Chicago.

Karpex Seat Cushions

THE Karpex Mfg. Co., Indianapolis, Ind., is making Black Diamond all-rubber back and seat cushions. Those cushions are constructed of semi-sponge rubber. In laboratory tests and actual use, the improved patented grid construction and design has proved sturdy and capable of almost unlimited wear under the most severe use. The principle of body-weight suspension, instead of support, permits extraordinary riding comfort. The cushions remain cool and comfortable as air-vents and air channels provide perfect air circulation.



Semi-sponge Karpex cushions

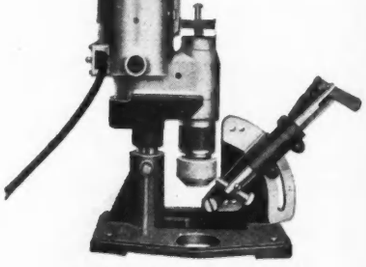
Black Diamond cushions are available in any size or shape to fit any truck cab.

A Correction

The safety signal printed in the January issue, page 46, with the National Automatic Safety Signal story was that of the Signal Devices, Inc., Chicago, and not the National signal device as incorrectly stated.

Hall Valve Seat Grinder

A NEW Hall Eccentric Valve Seat Grinder for service shop use is announced. Identical in principle with production and service type eccentric grinders made during the past three years, this new Model E-J grinder offers the service shop a lower-priced grinder for grinding valve seats of Stellite, high-speed steel or cast iron up to 2½ in. diameter. It revolves at 10,000 r.p.m.



Hall valve seat grinder

Marvel Inverse Oiler

THE Emerol Manufacturing Co., 242 W. 69th St., New York, N. Y., maker of Marvel Mystery oil, has just placed on the market the Model T. Marvel Inverse Oiler for under-the-hood installation. This unit has a capacity of two quarts and like the Model O (instrument board unit) it increases and decreases the flow of oil inversely with the vacuum in the manifold.

Marvel oiler

The adapter on the head of the unit has a calibrated adjusting screw, by means of which it is possible to adjust the flow of oil in drops per minute, to any desired value.

1934 Best Truck Year Since 1929

Production Totals 612,992; New Truck Registrations 403,886

WITH December figures in, 1934 goes into the records as the best year for the automotive industry since 1929. Truck production showed an increase of 71 per cent as the number of units jumped from 358,614 in 1933 to 612,992 in 1934 (U. S. and Canada). A month by month comparison reveals the fact that things are really on the up-and-up.

April was peak month in 1934 with 68,626. Dullest month in 1934 was November with 33,554 units but it beat 1933's low of 15,592 in February.

Although 1934 production figures are some 200,000 under the all-time high of 826,817 in 1929 (peak year for nearly everything), 1934 leads 1930 which had 599,991, stepped away from 1931 which had a production total of 434,174 trucks, and turned its exhaust pipe completely on the 1932 low of 245,285.

New truck registrations for 1934 tell the same bright story. Registrations for 1934 exceeded those of 1933 by 64.3 per cent (U. S. only). Total units: 1934, 403,886; 1933, 254,869. October led the registration-way with a total of 40,878 trucks; August finished second with 40,790. Both record months lead corresponding months for 1933 by a good 12,000 each. Low for 1934 was January with 22,903. Low for 1933 was February with 13,196.

Chevrolet maintained its lead for total new truck registrations with 157,507, to show a gain over 1933 of 57.7 per cent. Ford finished second with a total new truck registration of 128,250 units, but showed the way in per cent gain in 1934 over 1933 with 105.8 per cent. Chevrolet claimed 39 per cent of all 1934 new truck registrations; Ford 31.75 per cent. Largest gains were made by White with an increase in 1934 over 1933 of 186.2 per cent.

As we go to press, we get reports that passenger-car and truck production for U. S. and Canada exceeded 300,000 units for January, 1935. This represents the largest January production since 1926 with the single exception of 1929. Off to a flying start!

New Truck Registrations by Makes by Months

	Autocar	Brockway	Chevrolet	Diamond T	Dodge	Federal	Ford	G. M. C.	International	Mack	Reo	Sterling	Stewart	Studebaker	White-Indiana	Miscellaneous	Total
January....1934	79	91	8,917	406	2,581	120	6,650	555	2,284	161	289	9	61	98	284	318	22,903
January....1933	47	39	4,884	205	360	52	3,734	344	983	79	137	12	29	134	287	383	11,709
February....1934	58	81	10,718	420	2,723	121	6,459	453	2,150	144	339	14	60	109	357	270	24,476
February....1933	41	42	4,645	174	348	58	2,185	271	1,126	62	151	8	31	152	180	233	9,707
March....1934	64	117	15,112	501	4,154	170	8,642	717	2,841	145	461	10	67	126	452	315	33,894
March....1933	45	51	4,749	202	489	54	2,037	318	1,201	55	132	5	32	101	174	289	9,934
April....1934	88	104	15,050	534	4,367	178	13,167	839	2,729	206	527	4	90	123	558	318	38,882
April....1933	76	97	7,299	362	870	103	4,556	644	2,021	137	216	12	40	180	201	487	17,301
May....1934	146	117	14,148	508	4,441	186	14,390	1,031	2,849	212	578	10	103	193	544	375	39,831
May....1933	106	88	8,649	375	1,332	138	5,665	647	2,463	152	290	7	70	205	218	520	20,925
June....1934	95	108	12,981	481	3,729	196	12,205	884	2,435	154	504	9	67	133	447	350	34,778
June....1933	113	66	10,191	363	1,936	99	6,080	583	2,482	149	278	7	65	184	219	439	23,254
July....1934	99	147	14,704	457	4,224	182	12,492	951	2,548	202	416	17	67	156	396	432	37,490
July....1933	137	107	14,613	440	2,582	171	7,058	757	3,007	217	381	18	74	198	303	579	30,642
August....1934	61	107	15,790	508	4,754	162	14,055	1,033	2,809	143	439	15	56	138	337	383	40,790
August....1933	127	82	11,455	432	4,563	134	6,840	667	2,981	143	351	3	106	214	241	460	28,799
September....1934	118	74	15,159	420	4,086	158	12,250	1,240	2,538	103	369	3	31	153	238	285	37,225
September....1933	105	103	14,026	473	4,316	134	7,088	592	3,137	135	281	9	70	166	194	440	31,269
October....1934	169	118	15,723	535	4,669	200	13,544	1,106	3,238	146	364	16	52	212	460	326	40,878
October....1933	94	87	10,633	498	4,363	159	7,113	701	3,095	159	298	9	70	149	254	376	28,058
November....1934	85	79	11,296	305	3,868	150	8,060	886	2,626	116	393	8	40	131	336	310	28,689
November....1933	142	71	4,849	333	3,675	115	5,524	576	2,222	218	267	14	49	117	177	342	18,691
December....1934	77	70	7,946	365	4,656	139	6,374	754	2,508	98	356	19	42	125	283	313	24,125
December....1933	94	42	3,887	282	3,200	143	4,517	502	1,940	146	260	4	48	72	188	255	15,580
12 Months....1934	1,139	1,213	157,507	5,440	48,252	1,962	128,250	10,449	31,555	1,830	5,035	134	736	1,697	4,692	3,995	403,886
12 Months....1933	1,127	875	99,880	4,139	28,034	1,360	62,397	6,602	26,658	1,652	3,042	108	684	1,872	2,636	4,803	245,869
12 Months....% Gain	1	39	58	32	72	44	106	58	18	11	65	24	8	—9	78	—17	64

— = decrease.

Base prices on Chevrolet's 1935 line are: Standard Six 107-in. w. b. Sedan Delivery, $515; 1/2-Ton 112-in. w. b. Chassis only, $355; Chassis and Cab, $445; 1 1/2-ton 131-in. w. b. Chassis only, $485; Chassis and Cab, $575; 1 1/2-ton 157-in. w. b. Chassis only, $515; Chassis and Cab, $605. Dual wheel equipment $20 additional on 1 1/2-ton models.

Line for 1935

Efficiency is Increased With Many Engine and Brake System Improvements. New Unit Added

A new system of lubrication serves the connecting rods. At low speeds, the bearings are lubricated by oil picked up from troughs by connecting rod dippers. As the engine speed increases, the oil pump forces high-pressure jets of oil to flow constantly from six nozzles, one in each oil trough, directly upward so that the streams are in the paths of the connecting rod dippers as they approach and pass bottom center. These dippers thus receive oil during a prolonged period of each revolution.

The connecting rod bearings have been redesigned, and a large pocket is milled at the bottom to provide a reservoir which is filled each time the dipper passes through the oil stream. Oil pump capacity has been increased by enlarging the height of the rotor. The inlets and oil distributor pipe also are increased in diameter. Oil dilution is prevented by a patented crankcase ventilator which discharges gasoline fumes and vapors underneath the oil pan. Heavy oil vapors are trapped and condensed, to return to the crankcase.

Electroplated pistons are used which shorten the break-in period. The tin-plating offers little chance of scoring the cylinder wells. As the piston wears in, the tin fills up any minute irregularities in the surfaces of the piston and cylinder walls.

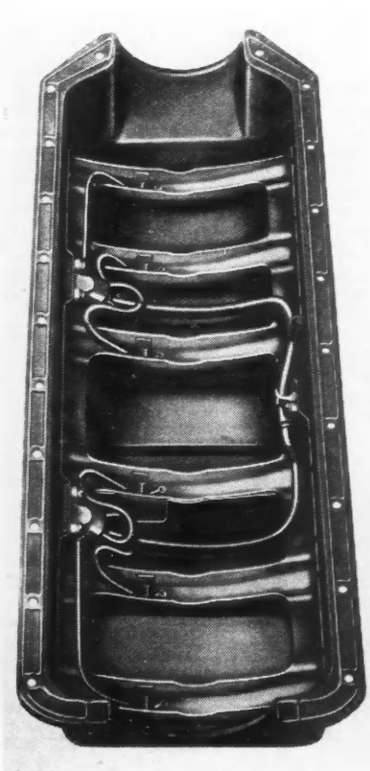
IN the cooling systems, water pump capacity has been increased. Special provision is made for the installation of cab heaters by means of tapped holes in the water pump body and the side of the cylinder-head near the front. The water taken from the cylinder-head front is approximately 10 deg. hotter than when drawn from the rear of the head.

Better control over the spark timing is obtained by improvements in the ignition distributor. The governor weights and cams are thicker and harder, and a definite stop for the governor weights at high speeds is included.

In the 1/2-ton model, smoother clutch operation is procured through the adoption of a waved driven plate that eliminates chatter. The face of the driven plate is composed of five blades bowed toward the fly-wheel providing five corresponding waves in the clutch facing. Upon engagement, the crests of these waves contact first with the fly-wheel face; the blades then gradually flatten and take up the load. The spring effect of the blades permits the use of harder and more durable clutch facing.

Revisions of springing have been made in the various models to provide greater flexibility for load variation,

(TURN TO PAGE 54. PLEASE)



Left—The oil pan is fitted with high pressure nozzles which shoot streams of oil into the connecting rod dippers at high speeds, as shown in the oil pan cross-section view (below left). Below right—1 1/2-ton model rear springs are larger

NEWS

House and Senate Schedule Eastman Bill Hearings

Hearings on the transportation bills drafted by Federal Coordinator of Transportation Eastman began Tuesday afternoon, Feb. 19, before a sub-committee of the House Committee on Foreign and Interstate Commerce. Hearings before the Senate Committee are scheduled to begin Feb. 25. It has not been revealed which of the Eastman bills will be considered first, but it has been strongly indicated that the bill providing for regulation of interstate motor carriers would get attention first.

Denham Opens Advisory Service

Athel F. Denham has resigned as Detroit editor for COMMERCIAL CAR JOURNAL and other Chilton publications, and has established a technical advisory service on automotive advertising and publicity with headquarters at 1235 Lafayette Building, Detroit.

Sternberg Sterling Head

E. M. Sternberg has resumed the presidency of the Sterling Motor Truck Co., Milwaukee, by election of a new board of directors. W. G. Sternberg and H. C. Keenan were elected vice-presidents, and Oscar G. Held, secretary and treasurer.

Ford Reports January Gains

Ford domestic production of V-8 cars and trucks for January of this year was 91,043 units, or an increase of more than 75 per cent over January of last year, when 51,974 units were produced in the United States. This is the more remarkable because of the fact that the new Ford V-8 cars were not introduced until December 29. Deliveries for January totaled 75,678 units, an increase of 110 per cent over deliveries for the same month of 1934.

Zummach Joins Hexcel

John G. Zummach has joined the staff of the Hexcel Radiator Co. as Chief Engineer, in charge of the commercial and air-conditioning branch of the business. The company has moved from Milwaukee to Racine, Wis.

Dodge Has Busy January

Dodge Brothers reports total truck deliveries for the month of January was 2929 units, against 2065 units delivered in the corresponding period in 1934—a gain of 42 per cent.

Army awards have been received for a total of 5000 motor trucks.

AC Promotes Three

Charles W. Crick, Miles Hanson and Kennett Wilcox have been promoted by the AC Spark Plug Co. Mr. Crick becomes assistant to the president; Mr. Hanson was made a superintendent with jurisdiction over the instrument department, and Mr. Wilcox becomes manager of the equipment sales department.

President Okays Maintenance Code

But Orders Stay for Provisions In Conflict With MVRT Code

The code of fair competition for the motor vehicle maintenance trade, including car dealer service stations, has finally been approved by President Roosevelt. A number of its provisions, however, have been stayed indefinitely, while all of its provisions which may conflict with the motor vehicle retailing code are stayed for 60 days for further study to determine which of the provisions of the two codes should govern the maintenance business of both trades.

The code is said to apply to approximately 100,000 shops employing about 350,000 workers, but apparently does not apply to about 85,000 other establishments in which automotive service is a supplemental part of their principal business.

The major hour provision is that which sets a maximum 44-hour work week of not more than six days per week and not more than eight hours per day.

The President's order stays the provision covering emergencies resulting from destructive price cutting. It also stays a provision intended to prevent reductions in price on repair jobs once a shop has made a bid on the work.

135,536 For-Hire Operators Register With Code Authority

Preliminary partial tabulations of for-hire operators registering with the Trucking Industry code authority, indicate that the largest group is the "anywhere for hire" classification. A total of 135,536 registrants operating 185,312 vehicles are covered in the analysis. Due to tabulating difficulties, these totals do not include as large a proportion of fleet owners as the final figures will incorporate. It is anticipated that the inclusion of these fleet owners will expand the common and contract carrier, and cartage classifications.

Gradolph DeVilbiss V.-P.

W. F. Gradolph has been elected vice-president in charge of sales of the DeVilbiss Company by the Board of Directors.

Husson Gets New Post

Joseph Husson has become automotive superintendent for the Produce Division of the Borden Sales Co., Inc., with branches throughout the United States. He formerly served as assistant to W. R. Hall, director of the Automotive Bureau for the company in New York City.

Next SAE Meet at White Sulphur

The 1935 Summer Meeting of the Society of Automotive Engineers will be held at White Sulphur Springs, June 16-20.

Manufacturers' Association Urges Truck Caution Plates

The Motor Truck Committee of the Automobile Manufacturers Association has recommended that truck manufacturers install a caution plate in all motor trucks warning drivers of the need for care and courtesy on the road. The committee suggests that manufacturers place the caution plate in a conspicuous place on the dash.

The suggested wording for the caution plate is—"Warning. Observe all traffic regulations. Drive well on your side of the road. Avoid danger. Be courteous to other highway users."

Truckers On Relief Relieved from Rate and Tariff Filings

Individual truck driver-owners who receive relief compensation for trucking services from the Federal Emergency Relief Administration or other public agencies have been exempted from the registration and rate and tariff filing provisions of the trucking code under an order announced recently by the N.R.A.

Mitchell Goes West for Thermoid

Edward P. Mitchell has joined the Thermoid Rubber Co., as a representative in the Pacific Coast Division.

Krieter With Russell

Harry Krieter, clutch engineer for the Burgess-Norton Mfg. Co., Ill., has shifted his position to the Russell Mfg. Co., Middletown, Conn., which recently acquired the Burgess-Norton clutch division.

GM's January Sales Up

Total sales of cars and trucks by GM's passenger car divisions in January were the largest for that month since 1930.

Domestic retail sales in January numbered 54,105, against 41,530 in December, and 23,438 in January, 1934.

Harper With Consolidated

Harry Harper is the new sales manager for the Consolidated Motors Corp., Lima, which has purchased the former plant of the Relay Motors Corp., where a new light truck will be made. Production is scheduled to start next month.

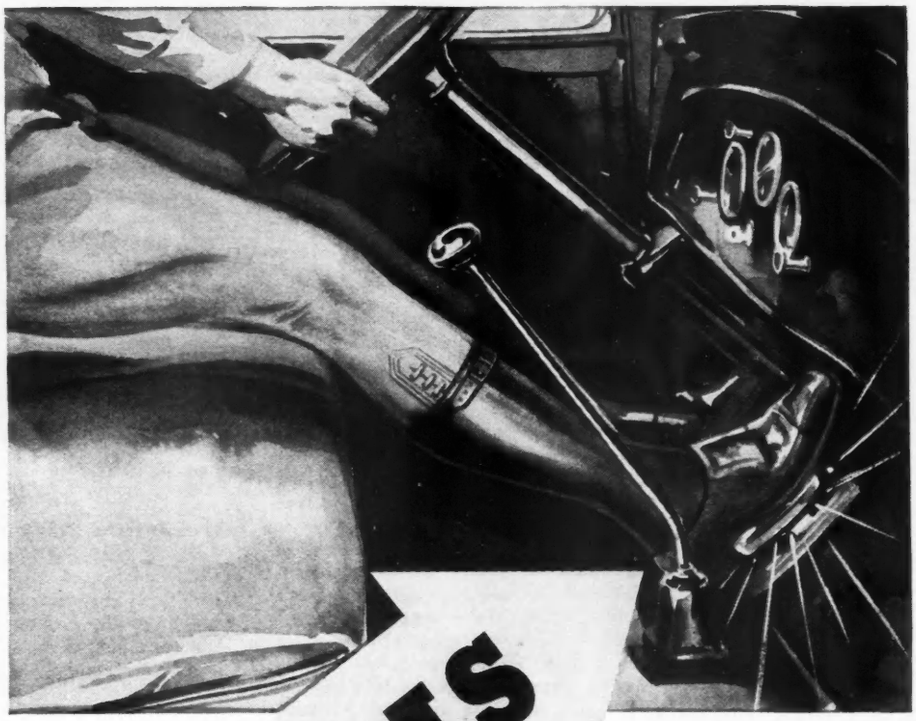
Davis Joins Spencer Trailer

Durrel Davis, formerly chief engineer of the Highway Trailer Co., Wisconsin, has joined the Spencer Trailer Co. of Augusta, Kan., in the capacity of chief engineer and production manager.

James A. Holihan

James A. Holihan died recently at his home in Detroit.

He once served as district sales manager for the Federal Motor Truck Co., and as sales manager for the Standard Motor Truck Co.



THIS

is what POWER BRAKING saves!

IF you've ever tooled a heavy truck all day—or all night—in any kind of traffic, you know as the hours go by, it takes more and more muscle to stop. There's many a story of tired legs and weary backs hidden away in the fleet records of truck accidents!

For years, Bendix B-K *Controlled* Vacuum Power Braking has saved muscle for thousands upon thousands of drivers . . . has saved the lives of many of them . . . has saved damage suits and money losses for truck owners.

It's pretty low-cost insurance, don't you agree?—especially nowadays, since so many states have laws practically *demanding* power braking for all trailers—and even for single trucks!

Why not tell your fleet superintendent now, to get all the details about Genuine Bendix B-K *Controlled* Vacuum Power Braking for your trucks?

When you install power braking, accept no substitutes for the genuine Bendix B-K Power Braking—sold and serviced by a nation-wide force of trained specialists. You'll be surprised to learn how little it costs. Write—

BENDIX PRODUCTS CORPORATION
401 Bendix Drive, South Bend, Indiana (*Subsidiary of Bendix Aviation Corporation*)

BENDIX

CONTROLLED VACUUM

BK VACUUM POWER BRAKES A BENDIX PRODUCT

POWER BRAKING

OVER A MILLION AND A QUARTER BENDIX B-K VACUUM POWER UNITS NOW IN USE

COMMERCIAL CAR JOURNAL'S

TRUCK SPECIFICATIONS TABLE

The Commercial Car Journal's Truck Specifications Table is brought up to date in each issue from data supplied monthly by truck manufacturers

●

KEY TO ABBREVIATIONS AND REFERENCE MARKS

GENERAL

Chassis Price—Chassis price quoted applies to the standard wheelbase and specifications listed. All prices are F.O.B. factory.
***—List price not yet established. Ready next issue.
Tonnage Rating—Where a spread of ratings is given the maximum ratings are for ideal operating conditions and the minimum for extremely difficult conditions; the ranges between are for varying operating conditions.
Gross Vehicle Weight—Is chassis weight, plus body and cab, plus payload. Gross vehicle weight given for a model is based on maximum recommended tire size and not on tires listed as standard equipment.
Chassis Weight Stripped—Includes gas, oil and water and all things included in chassis price. Does not include the weight of cab.
Maximum Brake H. P. at Given R.P.M.—Is actual dynamometer reading without accessories.
Tractors—Unless given the designation N (meaning not available as tractor), all standard models may be assumed to be available as tractors.
(A) All Torque and Brake Horsepower values listed are based on engine outputs with all Standard Equipment Accessories running and are the same values obtaining with the truck on the road in actual operation.
(N) Not available as tractor.
(T) This designation accompanying a model number indicates vehicle is specifically designed for tractor use only.
c. o. e.—Cab-over-engine design.
(3) **Corbitt**—Larger engines and corresponding auxiliary units provided on all models at extra cost.
(4) **Day Elder**—Model 75—1½ ton—same specifications except price—$945, and larger tire size—B6.00/20 front and DB6.00/20 rear.
(5) **Dodge**—F-61 available as special tractor truck with 146-inch wheelbase with model designation of F-60, at $2645. K-61 available as special tractor truck with 146-inch wheelbase with model designation of K-60, at ***.
(6a) **Dodge**—Model H20, ½-1 ton, gross vehicle weight 6,000 lb., price $502, has same specifications as H30 except tires which are 7.50/17 and lighter rear springs.
(6) **General Motors**—Models T-18 to T-61 inclusive are also available for export only as coach chassis. Dual performance axle at extra cost in Model T-18. Double reduction axles optional at extra cost in Models T-43, T-46, T-46H, T-51, T-73H and T-74. Worm type axles optional at price deduction in Models T-61, T-75T, T-75, T-75H and T-83. Chassis prices and weights on all cab-over-engine models include the cab. A complete line of superheavy duty models designated T-85 series (4-wheel) and T-95 series (6-wheel) custom-built to exactly meet customer's requirements are available with a range of axles, wheelbases, engines, transmissions, etc., and prices will be quoted upon application.
Gramm—Larger engines and corresponding auxiliary units provided on all models at extra cost when type of service demands. Wheelbases and body mounting dimensions may change to suit special requirements. Double reduction axles available on all models except AX and BX.
Gross weight indicated for each model in the table is the straight rating.
Series CXH is supplied with Hercules JXB engine in Model CXHB and Hercules JXC in Model CXHC.
(7) **Grass Premier**—Eight cylinder engines available on following models: 835 with Lyc. GU at $1515 list; 865 with Lyc. HF at $4230; 875 with Lyc. AE at $5400.
(8) **International Harvester**—A-1, ¾ ton, same as A-2 except less spring leaves and smaller tires.
(9) **Le Moon**—Model 600 available with Lyc. AEC at same cost. Models 701 and 801 available with Waukesha 6SRL at same cost.
(10) **Sterling**—Rocker arm used in place of springs
(D) **Sterling**—Diesel Equipped.
†**Reo**—Model 1D is the longer wheelbase edition of Model 1B. The frame dimension is 7x2¾x⅛. It is furnished at extra cost.
††**Reo**—2J, 2K same as 2H except 166 in. wheelbase and price of $1695.
††**Reo**—3J same as 3H except wheelbase of 170 in. and price of $2085; 3K same as 3H except 185 in. wheelbase and price of $2155. 3M same as 3H except 205 in. wheelbase.
(11) **Studebaker**—S-2 in 141 in. and 165 in. wheelbases has 6⅜ in. frame depth.
(12) **White**—Each model shown is furnished with different specifications for different tonnage ratings.
•—Factory governed speed 2400 r.p.m.
(12a) **White**—Special prices for each installation.
(13) **Marmon-Herrington**—Available with Hercules Diesel engine. Price on application.
(14) **Ford**—Rear axle ratios 5.14 and 6.6 optional on 1½-ton trucks.
(15) **Mack**—Chassis price and weight include cab
(16) **Biederman**—Will furnish Continental, Hercules, Waukesha and Lycoming engines at the buyer's option.
(17) **Moreland**—All Moreland models available with Waukesha engines and as six-wheelers with dead axle.
(18) **Walker**—Frame lengths may be changed, within limits, to suit individual requirements, at no additional cost.
(19) **Available**—Models WS125, WS240 and WS300 are available as cab-over-engine types.

MAKES—ALL

AB—American Bosch.
A LaF—American La France.
AL—Auto Lite.
B—Bendix.
BB—Borg & Beck.
BL—Brown-Lipe.
BO—Bendix front, Own rear.
Blo—Blood.
Bu or Bud—Buda.
BW—Borg Warner
BWs—Bendix front, Westinghouse rear.
C or Col—Columbia.
Car—Carter.
Ch—Chicago.
CI—Ignition by compression.
Cl or Cla—Clark.
Cle—Cleveland.
Co—Covert (transmission).
Co—Covert (clutch)
Con—Continental.
Cot—Cotta Gear.
Cum—Cummins-Diesel
Det—Detroit Lubricator.
DG—Detroit Gear and Machine.
DR—Delco Remy.
Eat—Eaton.
Ei—Eisemann
En—Governor built in engine
EV—Electro-Vac (gov.) Pierce
Fe—Fedders.
Fu—Fuller.
Ge—Gemmer.
GO—G. & O.
Ha—Handy (governor).
Ha—Hannum (steering gear).
HaS—American Car & Fdry.
Her—Hercules.
Hr—Harrison
HS—Merchant & Evans (clutch).
HS—American Car & Fdry. (governor).
Jac—Saginaw.
Jo—Jones.
KP—Handy.
L—Lockheed.
Le—Leibing
Li—Lipe, W. C.
LN—Leece Neville.
Lo—Long.
LO—Lockheed front, Own rear
LW—Lockheed front, Wisconsin rear.
Lyc—Lycoming.
Mc—McCord.
Ma—Marvel.
ME—Merchant & Evans.
MM—Mechanics Mach.
Mo—Modine (radiator).
Mo—Monarch (governor).
My—Mallory.
NE—North East.
No—Not supplied.
ns—No Standard.
O or Ow—Own.
Op or Opt—Optional.
Pe—Pierce (governor).
Pe—Perfex (radiator).
PS—Peters & Snead.
RB—Robt. Bosch.
Ro—Rockford.
Ros—Ross.
Sc—Scintilla.
Sch—Wheeler-Schebler.
Shu—Shuler.
SpB—Spicer and Blood
Spi—Spicer.
Ste or St—Sterling.
Sto.-Bat.—Storage Battery
Str—Stromberg.
Til—Tillotson.
T or Tim—Timken.
TWH—Timken Wisconsin Herrington
WG—Warner Gear.
Wa—Waukesha (governor).
Wau—Waukesha.
W or Wis—Wisconsin.
Ws—Westinghouse.
Yo—Young
Zen—Zenith.

BRAKES—SERVICE

Location

2—Two Wheels, rear only.
2/4—Two-wheel brakes effective on all four wheels through driveshaft.
4/6—Brakes on four rear wheels effective on all wheels through driveshaft.
T/4—Brake on transmission effective on all four wheels through driveshaft.
4—Four Wheels, front and rear.
4r—Four Wheels, rear only.
6—Six Wheels, front and rear.
J—Jackshaft.
P—Propeller shaft.

Type

I—Internal.
X—External.

Operation

A—Air.
D—Hydraulic and mechanical.
H—Hydraulic.
M—Mechanical.
V—Vacuum.

BRAKES—HAND

Location

C—Center of double propeller shaft.
2—Rear wheels.
4—Four wheels.
R—Worm or bevel gearshaft.
T—Transmission.
F—Driveshaft.

Type

D—Tru-Stop disk.
I—Internal.
X—External.

BRAKE DRUMS

Material

a—Cast alloy iron.
A—American Car Fdry.
C—Centrifuse.
D—Dayton.
E—Ermalite.
G—Gunite.
H—Hunt Spiller.
c—Cast iron.
p—Pressed steel.
P—Pressed steel.
s—Cast steel.
(Where a combination of any of the above is used, the first reference mark applies to the front and the second to the rear drums.)

CLUTCH

Type

D—Multiple disk.
dp—Double plate.
O—Plate in oil.
P—Single plate.

ENGINE

Valve Arrangement

F—Inlet valve in head; exhaust valve at side.
H—In head.
L—"L" head, valves at side.
T—Inlet and exhaust on opposite sides.

Camshaft Drive

C—Chain.
G—Gear.

Piston Material

A—Aluminum alloy.
S—Semi-steel.
C—Cast iron.
N—Nickel iron.
S—Aluminum alloy with strut.

Main Bearings

r—Rear main bearing.

Oiling System

CC—Pressure to main, connecting rod and camshaft bearings.
FP—Pressure to main, connecting rod camshaft bearings and piston pins.
PC—Pressure to mains and connecting rod bearings.
PQ—Pump, gravity and splash.
PS—Pressure with splash.

FRAME

Type

I—"I" Beam.
C—Channel.
T—Channel tapered front and rear
L—Channel reinforced with liner.
B—Channel reinforced with both liner and fishplate.
P—Channel reinforced with plate.
TL—Channel tapered front and rear reinforced with liner.
D—Drop Center.
Tf—Tapered front.
X—x-Braced.

FUEL SYSTEM

Fuel Feed

E—Electric pump.
G—Gravity.
M—Mechanical pump.
P—Pressure.
V—Vacuum.
B—Bosch.
C—Cummins.

REAR AXLE

Final Drive and Type

B—Bevel.
C—Chain.
D—Dead.
F—Full-floating.
2—Double Reduction.
S—Spiral bevel.
W—Worm.
w/2—Worm or Double Reduction Optional.
½—Semi-floating.
¾—Three-quarter floating.

Drive and Torque

A—Radius Rods and Torque Arm.
H—Hotchkiss. (springs)
R—Radius Rods
T—Torque Arm.
U—Torque Tube.

SPRINGS

Auxiliary Type

½—Semi-elliptic above or below main springs.
¼—Quarter elliptic.
C—Coil spring.
N—No.
O—Optional.

TIRES

B—Balloon.
DB—Dual Balloons.
P—High Pressure Pneumatics.
DP—Dual High Pressure Pneumatics.
S—Solids.
DS—Dual Solids.
°—Pneumatics at extra cost.

TRANSMISSION

Location

A—Amidships.
J—Unit with jackshaft.
U—Unit with engine.

Auxiliary Location

No—Not furnished.
O2—2 speed axle unit optional at extra cost.
Op—Optional at extra cost.
A—Amidships.
R—Rear of amidships main transmission.
U—Unit with engine.

WHEELS DRIVEN

2C—Center pair of rear wheels.
2R—Rear pair of rear wheels.
4F—Front and center pair of rear wheels.
4R—Four rear wheels.
6—Six wheels

Specifications Are for New Models Announced This Month—A Complete

NOTICE—The policy of Commercial Car Journal now is to publish complete specifications of all current truck models in the January, April, July and October issues. These quarterly listings correspond to the big seasonal truck buying periods.

In the intervening months will be published the specifications of all new models that are brought out. (Just as you see

Line Number	MAKE AND MODEL	GENERAL (See Keynote)						TIRE SIZE		ENGINE		TRANSMISSION			REAR AXLE					FRAME	
		Tonnage Rating	Chassis Price	Standard Wheelbase	Max. W.B. Furnished	Gross Vehicle Weight	Chassis Wt. (Stripped)	Front	Rear	Make and Model	No. of Cylinders, Bore and Stroke	Make and Model	Location, Forward Speeds	Aux. Location and Speeds	Make and Model	Gear and Type	Drive & Torque	GEAR RATIOS In High	GEAR RATIOS In Low	Side Rail Dimensions	Type
1	Brockway	4–5	***	167	191	24000	8150	B9.75/20	DB9.75/20	Con 32B	6–4 1/8 x 4 1/2	BL 5241	U 4	Op	Wis. 1337BH	2F	R	7.27	51.9	8 1/4 x 3 x 3/8	T
	Studebaker																				
2	IT-230 (241-265)	1 1/2–2	***	130	165	10500	3185	B6.00/20	P32x6	Own	6–3 1/4 x 4 3/8	WG T9	U 4	No	Cla B373	SF	H	5.66	36.2	7x2 3/4 x 1/4	T
3	IT-641 (653-665)	2–3	***	141	165	13500	4130	B6.50/20	DB6.50/20	Own	6–3 1/4 x 4 3/8	WG T9	U 4	No	Tim 54410	SF	H	6.8	43.5	7x2 3/4 x 1/2	T
4	IT-683	2–3	***	183	183	13500	4560	B6.50/20	DB6.50/20	Own	6–3 1/4 x 4 3/8	WG T9	U 4	No	Tim 54410	SF	H	6.8	43.5	8x2 3/4 x 1/4	T
5	IW-741 (765-783)	2 1/2–3 1/2	***	141	183	16000	.....	B6.50/20	DP32x6	Wau BK	6–3 3/4 x 4 1/4	Cla R910	U 5	No	Tim 58200	SF	H	6.8	55.2	8x2 3/4 x 1/4	T
6	IW-841 (865-883)	3–4	***	141	183	18200	5870	B6.50/20	DP32x6	Wau6-110-358	6–4x4 1/4	Cla R910	U 5	No	Tim 58200	SF	H	6.8	55.2	8x2 3/4 x 1/4	T

Makers' Corrections of Specifications

Published in January

AVAILABLE — Model W-120, gross vehicle wt. is 12,500; was 11,200. Models W-170, W-210 gross vehicle wt. is 14,000; was 13,400. Rear axle make is Tim 54410; was 54300. Models W-210, W-240 transmission make is Fu 5-A-290; was BL 234. Location and forward speed is 5; was 4. Model W-210 gear ratio in low speed is 41.5; was 43.5. Model W-240 gear ratio in low speed is 45.1; was 47.4. Model W-300 main bearing length is 2 7/8; was 2 13/16. Models W-210, W-240 carburetor make is Str; was Zen. Models W-300, W-400 carburetor make is Bri; was Ma and Str.

BROCKWAY — Models 140-E, chassis price is $3,200; was $3,100. Model 170-E chassis price is $3,650; was $3,450.

CORBITT—Model 24 transmission make is Fu 5-A-530; was BL60. Location and forward speeds is U5; was A7. Model 33 transmission make is Fu 5-A-530; was BL60 Max. Location and forward speeds is U5; was A7.

FAGEOL—Model 135HP chassis price is $2,275; was $2,295. Models 300HP, 300RA standard whlbse is 186; was 178. Max. whlbse is 200; was 196. Transmission make is BL 5241; was 524. Models 300D, 300RA-D std. whlbse is 189; was 178. Max. whlbse is 204; was 196.

HAHN—Models HD2, 440 rear axle make is Wis 1337-BH; was Wis 1237H.

HENDRICKSON — Model 15S drive and torque is R; was H. Models 15SA drive and torque is H; was R. Model 19S drive and torque is R; was H. Models 15S, 15SA, 19S, 24S, 32S springs auxiliary type is ½; was N.

INTERNATIONAL — Model C1 chassis price is $400; was $390. Model C20 chassis price is $585; was $575.

MAR-HERR—Models A30, A40 frame type is P; was C.

MORELAND—Is Model R12H; was model R11H.

REO—Models 1B4, 1D4 chassis price is $685; was $595. Models 2B4. 2D4 chassis price is $895; was $845. Models 2H, 2J, 2K chassis price is $1,375; was $1,245. Models 3H, 3J, 3K, 3M chassis price is $1,975; was $1,795. Models 4H, 4J, 4K, 4M chassis price is $2,975; was $2,595. Model S-4P gross vehicle wt. is 4500; was 4200. Models S-4P, 1B4, 1D4, 2B4, 2D4, 2H, 2J, 2K, 3H, 3J, 3K, 3M main bearing length is 10 5/8; was 12. Models 1B4, 1D4 carburetor make is Car; was Str. Ignition system make is Al; was Dr. Starter and generator make is A1; was Dr. Models 1B4, 1D4 clutch make is P-BB; was P-OW. Radiator make is Fe; was OW.

WARD LaFr. — Model 25R-14 chassis price is $2,775; was $2,800. Model 25R-18 is $3,175; was $3,275. Model 30R-19 is $3,625; was $3,675. Model 30R-23 is $4,000; was $4,175. Model 35R is $4,450; was $4,975. Model 55RH is $5,150; was $5,350. Model 100RW is $7,200; was $7,350. Model 100CWT is $8,690; was $9,000.

FOUR WHEEL DRIVES

CORBITT—Model 10FB6 transmission make is WG-TS; was BL214. Rear axle make is Tim 53615H; was Tim 53200H. Gear ratio in high is 6.60; was 6.20. Model 9FB6 is Cla B116C; was BL224.

SIX WHEELERS

CORBITT — Model 20SW6-4R transmission make is Fu 5-A-38; was BL 615. Model 28SW6-4R transmission make is Fu 5A-53; was BL 607. Location and forward speeds is U5; was A7. Model 36SW6-4R transmission make is Fu 5A-53; was BL 607. Location and forward speeds is U5; was A7.

Driver Exhaustion

(CONTINUED FROM PAGE 35)

tained in the National Safety Council report on driver-asleep accidents are: (1) The element of fatigue should be given a more important place on accident report forms used by fleet operators, insurance companies, states and cities. (2) There is need for scientific research to determine the effect continuous driving has on different individuals. (3) Companies operating fleets and individual truck owners should voluntarily organize their business to avoid long hours of duty for drivers. (4) Every state should limit

Listing of All Trucks in Current Production Will Be Given in April

them printed on this page.)

In addition, so that there may be a public record available at all times of the minor changes made in current models, these changes will be published monthly as shown below.

The next complete specification listing will appear in Commercial Car Journal's April number. Correspondence on the policy is requested.

Line Number	ENGINE DETAILS										Oiling System Type	Governor Make	FUEL SYST.		ELECTRICAL		Clutch Type and Make	Radiator Make	Universals Make	FRONT AXLE	Steering Gear Make	BRAKES				BODY MOUNTING DATA			SPRINGS		
	Displacement	Comp. Ratio	Torque lb. ft.	N.A.C.C. Rated H.P.	Max. Brake H.P. at R.P.M. Given	Valve Argmt.	Camshaft Drive	Piston Material	MAIN BEARINGS Number and Diameter	MAIN BEARINGS Length			Carburetors Make	Fuel Feed	Ignition System Make	Generator, Starter Make				Make and Model		SERVICE Make	SERVICE Location Type Operat'n	SERVICE Lining Area	SERVICE Drum Material	Hand Location Type	Cab to Rear of Frame	Cab to Rear Axle	Width of Frame	Front	Rear	Auxiliary Type
1	360	4.5	240	40.8	90–2500	L	G	N	7–2⅝	13	CC	KP	Zen	M	AL	AL	D.BL	GO	Spi	Shu 15682B11	Ros	L4IHV	500	G	CD	168	101	34½	40x2½	54x3	½
2	230	4.6	154	25.4	75–3200	L	G	C	4–2½	8½	CC	No	Car	M	DR	DR	P.Lo	Me	MM	Cla F264	Ros	B4IH	260	a	T	85¾	48⅛	33 11/16	36x2	45x2½	O
3	230	5.5	....	25.4	.....	L	G	C	4–2½	8½	CC	Ha	Car	M	DR	DR	dp.Lo	Me	MM	Tim 31020	Ros	B4IH	330	D	T	97¼	60	34	39x2	56x3	½
4	230	5.5	....	25.4	.....	L	G	C	4–2½	8½	CC	Ha	Car	M	DR	DR	dp.Lo	Me	MM	Tim 31020	Ros	B4IH	330	D	T	167 7/16	102	34 7/16	39x2	56x3	½
5	282	5.1	190	33.7	85–3200	F	G	A	7–2⅝	10½	FP	....	Zen	M	DR	DR	P.Li	Me	MM	Tim 31020	Ros	B4IHV	420	D	T	97 7/16	60	34 7/16	39x2½	56x3	½
6	358	5.1	254	38.4	110–2800	F	G	A	7–2¾	11½	FP	Wa	Zen	M	DR	DR	P.Li	Me	MM	Tim 31020	Ros	B4IHV	420	D	T	97 7/16	60	34 7/16	39x2½	56x3	½

the hours of duty of all truck drivers. Such limitations should cover total working and waiting time, and laws should specify the amount and conditions of rest required to interrupt such a period on duty. (5) There is need for agreement among states as to what constitutes time on duty and the conditions under which rest may be obtained. (6) Each state should adopt definite procedures for enforcing rules governing drivers' hours on duty. (7) As a matter of good management truck operators should have detail trip sheets kept so that they can know exactly the conditions under which their trucks and drivers work.

Result: less accidents with drivers fatigued or asleep at the wheel, less loss of life and damage to property, considerable saving to truck owners.

Colloidal Graphite

(CONTINUED FROM PAGE 39)

and spectacular test, it travels along a path well defined by the claims of the makers and many of the users of colloidal graphite. That is, that a surface treated with colloidal graphite will continue to function as a lubricated surface long after the liquid lubricant has disappeared. This surface is dark in color and has a high polish. The appearance and the ability to retain its lubricated qualities even when the lubricating oil is absent are undoubtedly due to the filling in of the metal pores with graphite and the ability of the graphite to act as a dry lubricant.

Colloidal graphite is a mixture of lubricating oil and graphite that comes as near being a solution as it is possible to have when a substance that is not soluble in a given vehicle is combined with it. Each 300-mesh particle of graphite is broken up into hundreds of smaller particles and each particle is charged with electricity of like polarity. Then since bodies charged with electricity of the same sign (plus or minus) repel each other these particles are kept in a state of constant agitation. This agitation overcomes the effect of gravity and prevents settling.

One-tenth of 1 per cent by weight is the correct amount of graphite to have in colloidal graphite for crankcase use so there is very little chance of the solid matter clogging oil lines. This is mentioned only because it is a theoretical objection sometimes expressed. No record has been found where it actually happened.

Another point that is sometimes raised is that graphite is an excellent conductor of electricity and for that reason may short out the spark plugs. That is another one of those theoretical points that is probably based on sound reasoning but never works out in practice for the reason that in a one-tenth-of-1-per-cent mixture the amount of graphite that could be deposited on spark plug electrodes would become cause for anxiety only long after the amount of oil deposited on the electrodes has fouled the plugs—this, even if the engine was a bad oil pumper.

METALLIC surfaces exposed to, or treated with colloidal graphite become what is referred to as graphoid surfaces. Graphoid surfaces are more easily wetted with oil and are more difficult to dry than are surfaces not so treated. This fact should give colloidal graphite a definite edge as an engine lubricant during the starting and stopping periods when much wear occurs.

Colloidal graphite is marketed under a number of different brand names. It comes, in some cases, in the lubricating oil in the correct proportions. Another common way of packaging it is to put up a quart can of lubricating oil charged heavily enough with graphite to make the mixture correct when the contents of the can is emptied into the crankcase with 7 qt. of straight lubricating oil.

Colloidal graphite can be reclaimed with a centrifugal type of reclaimer. Other types of reclaimers will purify the oil but they will also remove the graphite.

OIL charged with graphite is sold for and recommended as a top cylinder lubricant to be fed through the intake manifold by a lubricator. A special lubricator is not required. It is alleged to have a very high resistance to oxidation which is certainly in its favor as a top cylinder lubricant. It is not soluble so the gasoline would have no particular effect on it.

In running in new or rebuilt engines colloidal graphite has probably been more widely used than at any other time. At a time when the tool marks and the roughness of the metallic surfaces exceed the thickness of the oil film, the graphite fills in the pores and imparts to the surface the polish required for normal performance.

The automotive industry in European countries has taken more readily to the use of colloidal graphite and apparently more of it is used in Europe than in this country. It is a subject of active interest and all of the discussion between authorities seems to be in favor of the use of colloidal graphite.

OPERATORS BLACKBALL EASTMAN BILL

(Continued from Page 13)

seen. It must be remembered, however, that the President has great confidence in Mr. Eastman, and is likely to give his endorsement to the Eastman bills, even though one of them is distasteful to the Interstate Commerce Commission as presently constituted.

Over-riding all of its many suggested amendments, the trucking industry's policy committee insisted that a Federal regulatory bill should include as much of the code machinery and the code organization as practicable.

THE big fault, as the committeemen saw it, in the Eastman bill was the utter absence of any enforcement machinery. It is true the bill provided for a system of joint boards, such as was contained in previous Federal bills, but the committee could not see how such agencies, which have been powerless to enforce state regulatory laws, could be expected to bring about compliance with an interstate law. For that reason, it was the dominant opinion that the system of code authorities, code committees and enforcement machinery now being set up by the National Code Authority should be retained, if policing of the industry under a Federal law were to be effective.

It was pointed out that the registration reports, as gathered by the National Code Authority, reveal that the industry consists largely of small unit operations, with an average of 1.36 vehicles per owner and that any regulation, if it is to allow the industry to live and prosper, must be as near self-regulation as possible.

It was the unanimous opinion of the committeemen that the Declaration of Policy, or the preamble, to the proposed regulatory act should be as favorable to highway transportation as the present Interstate Commerce Act is to railway transportation and that Congress "should foster and maintain in full vigor the highway transportation industries."

The bill would exempt from interstate regulation the services of local draymen, even though their operations might cross state lines, so long as they confine themselves to a municipal trade area. Such exemption would not be valid, however, if the transportation were under "a common control management or arrangement for a continuous carriage or shipment to or from a point without such municipality or zone."

Under a Supreme Court decision in the Galveston Truck Line case, it was held that purely intrastate operations should be classed as interstate, if they were "a link" in interstate commerce.

Applying that opinion to the cartage business, it is clear that a large percentage of it could be made subject to the proposed act.

ONE of the exemptions of the Eastman bill which drew fire from the 40 industry committeemen was that which excluded "the casual or occasional transportation of property in interstate or foreign commerce for compensation by any person not regularly engaged in transportation by motor vehicle as his or its principal occupation or business."

Under that exemption, as interpreted by the committee, a manufacturer or department store operator, using his trucks to haul his own goods on outbound shipments, could solicit return loads for-hire, and chisel against the regularly constituted for-hire operators, and still escape any kind of Federal control. That is a problem which has confronted the industry under its code and has not been successfully solved. To specifically exempt such operations from control under a Federal bill was like adding salt to an open wound.

Section 306, entitled "Application for Certificate of Public Convenience and Necessity," despite its liberalization, came in for harsh criticism. For one thing, the committee was of unanimous opinion that the grandfather clause, as contained in that section, should not be operative with those carriers who had not registered under the trucking code and complied substantially with its provisions. Moreover, as the truck operators read this section, they were convinced that an entirely rewritten section was necessary in order to give the operators an opportunity to grow, in accordance with the demands of their customers, and the increase in business generally. As stated, the section was interpreted to mean that certificates would be limited to present equipment, to current customers, and that the operator would be required to obtain Interstate Commerce Commission approval for the addition of a truck to his fleet.

That provision of the bill, which is found in many state regulatory acts, was anathema to the policy committee members. They saw in it an attempt, which is known to be the purpose of their railroad competitors, to restrict and strangle the development of highway transportation.

In the section providing for the revocation of certificates and permits, also, was one that the truck operators could not swallow. Revocation would be justified on "willful failure to comply with any provision of this part, or with any lawful order, rule or regulation of the commission." Yet, no such sweeping authority is granted to the commission over the railroads. In lieu of such power, the truckmen felt the section

(TURN TO PAGE 52, PLEASE)

Here are the members of the American Trucking Associations Policy Committee which picked flaws in the Eastman Regulatory Bill as now written.

DT = Dump Truck Cn = Common
Ct = Contract Ca = Cartage
Inter = Interstate Intra = Intrastate
I&I = Interstate & Intrastate
L = Local Pr = Private

Ted. V. Rodgers (Pa.)—Ct.; Intra.
W. F. Banks (N. Y.)—Ct.; Inter.
W. F. Fitzpatrick (Mich.)—Cn.
J. W. Blood (Kan.)—Cn.
J. E. Murphy (Minn.)—Ct.
Roy B. Thompson (Cal.)—Intra.
S. J. Cashel (Mo.)—Cn.
Frank Shufflebarger (N. M.)—Ct.; Ca.; Inter.; L.
F. R. Petty (Kan.)—Ct.; Inter.; Intra.
Allan J. Wilson (Mass.)—Cn.; Ct.; Inter.; Intra.
Frank C. Schmidt (Ohio)—Cn.; Inter.
E. G. Rice (Mich.)—Cn.; Inter.
J. F. Winchester (N. J.)—Pr.; Intra.
W. L. Stodghill (Ky.)—Intra.; L.; Ca.
E. D. Balcom (Tex.)—Intra.; Inter.
Percy F. Arnold (R. I.)—Ct.; Inter.; Intra.
Fred. O. Nelson (N. Y.)—Ca.; L.; Inter.
E. J. Buhner (Ind.)—Cn.; Inter.
Maurice Tucker (Ind.)—Cn.; Ct.; Inter.
Frank Flanagan (Mass.)—DT.
R. A. Anderson (Mo.)—Cn.; Inter.; Intra.
H. T. Horton (N. C.)—Cn.; Ct.; Inter.; Intra.
M. B. Emerson (Vt.)—DT.; L.
Guy F. Dunton (Me.)—Cn.; Inter.; L.
J. H. Alphin (Ark.)—Ct.; Inter.
S. J. Drummond (Ala.)—DT.; L.
Frank I. Hardy (Mass.)—Cn.; Inter.
F. G. Dorsey (Tex.)—Cn.; Ct.; Ca.; Inter.; Intra.
E. Chas. Gladding (Md.)—DT.; Inter.; Intra.
B. G. Miller (Pa.)—Ct.; Inter.; Intra.
J. P. Clark (Pa.)—Ct.; Intra.; Inter.

ARE YOU MERELY WHITTLING DOWN YOUR BATTERY MAINTENANCE COSTS?

NOWHERE is the old maxim — "An ounce of prevention is worth a pound of cure" — truer than with storage batteries and battery maintenance. Prevention begins with the battery you buy. And a simple maintenance routine, applied to Exide Batteries, saves its cost many times over.

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Exide Batteries of Canada, Limited, Toronto

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Exide

NRA CODE

BATTERIES FOR EVERY TYPE TRUCK

OPERATORS BLACKBALL EASTMAN BILL

(Continued from Page 50)

should be eliminated entirely and that a system of fines be provided for the failure to comply with any of the commission's rules and orders governing the regulations of highway transportation.

Bearing in mind the experience under the trucking code, and the experience under state regulatory acts, the committee felt that 60 days was too short a period to allow for the thousands of truck operators to comply initially with the Federal act. They argued for 120 days, and felt that probably six months was not too long a period.

Another important point, which met with unanimous approval, was that the basis of public convenience and necessity in the granting of certificates and permits should be adjudged from the standpoint of available motor service, rather than from the availability of railroad service. Such a provision was included in the bill drafted by the National Industrial Traffic League, the details of which were recorded exclusively in the COMMERCIAL CAR JOURNAL, August, 1934.

The question of contract carriage aroused prolonged consideration. It was the consensus of opinion that contract carriage should be considered as a business rather than on the basis of individual contracts. In other words, if an operator so engaged were to lose a certain customer, he should be permitted to solicit and obtain another customer, without being obliged to apply to the commission for the privilege of so doing.

THE complicated provisions relating to the bonding and insuring of operators were deemed to be wholly inapplicable to the industry. It was felt that financial responsibility was necessary and desirable, and that any operator proving such should be relieved of the necessity of obtaining complicated and, in some instances, wholly inobtainable bonds or insurance.

Rates, also, should be established without regard to railroad rates, in the opinion of the committee.

Above all, the committee definitely stated that any concurrence with the proposed regulatory bill was contingent on the passage of H.R. 5365, providing for the reorganization of the commission, the control of the highway industries by a division specifically appointed for that purpose and the administration of the trucking code by the Federal Coordinator of Transportation.

When the heat of the discussion subsided, it was evident that the committee members lacked any enthusiasm for the proposed bill. They felt that without substantial amendment, it would not be suitable or suited to the industry. They felt that if it were rigidly enforced, it would have the effect of eliminating the small operator and making possible the consolidation of highway operations and placing them in the hands of powerful interests, such as the railroads and their bankers.

It is no secret that Mr. Eastman's proposals, if they are analyzed properly, contemplate consolidation and elimination of many individual trucking businesses. Coordination is a term that substantially means consolidation and such consolidation means subordination to railroad domination.

The trucking business has survived and developed because of its personalized service to shippers. Even with the liberality of the Eastman proposals, it is evident that the effectiveness of the for-hire trucking industry would be substantially curtailed, if the present proposal for Federal regulation were made truly effective. Whether this bill will be considered by Congress is problematical.

THE President has indicated his desire to have all the Eastman proposals incorporated in a single transportation bill. That would mean that the Motor Carrier Act would be subjected to considerable revision. Perhaps some of its liberal provisions would be deleted; perhaps a rewritten bill would be even more distasteful to the rank and file of the industry.

Despite its shortcomings, it is apparent that Mr. Eastman has made an honest effort to adapt Federal regulation to the needs of the trucking industry. He has progressed far beyond previous proposals, those largely submitted by the National Association of Railroad and Utilities Commissioners. Apparently, he has heeded the admonitions and suggestions of the organized trucking industry. Nevertheless, there yet remains a great deal to be accomplished along that line.

In the Senate Interstate Commerce Commission Committee, where the regulatory bill must be considered, Senator James Couzens of Michigan is known to be a militant defender of the rights and privileges of the industry. Moreover, Senator Burton Wheeler of Montana also has distinguished himself as being an opponent of any proposal that would give the railroads control over competing forms of transportation. Senator Couzens believes that a period of two or three years is necessary for mere reporting of the activities of highway transportation before any real regulatory activities are attempted.

In short, Mr. Eastman's plan is far from being perfect; it is far from enactment. The legislative wheels may grind slowly and exceedingly fine before the trucking industry finally is placed under I. C. C. control.

Hi-Rate Homcharger

THE Automatic Electric Devices Co., 324 East Third Street, Cincinnati, introduces the new Hi-Rate Homcharger for batteries. The new unit includes such special features as a filtering system which effectively eliminates radio interference. The charging rate of this new unit is higher than any previous model of Homcharger. You can charge your battery over-night for the small cost of five cents, the manufacturer claims.

Handy Hoist

FOR jobs of hoisting, hauling, loading and lifting, up to five tons, quickly and easily, the Handy Hoist is manufactured by Alloy Steel & Metals Co., Inc., 1862 E. 55th St., Los Angeles, Calif.

Designed for use on trucks, trailers and wrecking cars, it also serves adequately in the handling of boilers, safes, machinery, structural erection and in mines, quarries, shipyards, etc.

It is built entirely of electric steel and provided with two speeds, 4 1-3 to 1 and 23 to 1 with positive internal brake. The Handy Hoist is compactly built, 16 in. wide, 20 in. long and 13 in. high. The unit weighs 125 lb. and can be operated in any position.

Fountain Brush

THE Beaurline Fountain Brush is said to be the most efficient, quickest and easiest washing method yet devised. It does the job in about one-third the time required by any other method. The brush is put into operation by slipping the four-foot long handle on the end of a water hose. The head of the brush is of durable, light weight cast aluminum into which is woven a thick mop of soft, tough 4-in. bristles. Around the head is a combination gasket and rubber guard to prevent scratching. Because of its simplicity there is nothing to get out of order, and the brush will give satisfactory service for a long time. Replacement of the bristle plate may be made when needed at low cost. The brush is the product of the Beaurline Fountain Brush Co., 1619 South State Street, Chicago.

No Brake on earth can stop a truck as FAST and as smooth as ELECTRIC BRAKES

ELECTRICITY TRAVELS AT A SPEED OF 186,000 MILES PER SECOND

HERE'S WHY..

● The moment the driver presses the foot pedal, the electric current from the generator or battery *arrives* at the brakes, and applies them.

Quicker than the flick of an eye-lash, the current flows equally to each wheel. If only a fraction of a second need be saved to avert an accident, electric brakes will prevent that accident.

This is a main reason why so many big operators from coast to coast are using electric brakes in preference to any other kind.

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MADE BY WARNER ELECTRIC BRAKE MANUFACTURING CO. • BELOIT, WISCONSIN

IS IGNITION EQUIPMENT INADEQUATE?

(Continued from Page 29)

cient appreciation of the battery problem nor do they make a sufficient study of it. As evidence he pointed to the wide variation in battery sizes used for a given piston displacement. This is further confirmed, he said, by the inability of some vehicle manufacturers to supply information on minimum cranking speed and the minimum temperature at which the battery used will crank the engine. Mr. Faulkner was prepared to concede that many designing engineers know better. But, he said, assuming that the engineers do decide upon a proper size battery, if an improper battery is actually furnished "then it is apparent that the purchasing department has had the final vote."

MR. FAULKNER then suggested that manufacturers adhere more closely to the use of the average size battery for a given piston displacement to minimize winter starting difficulties.

Mr. Faulkner's report went on to warn the unwary that all of the starting troubles cannot be laid at the feet of the battery. The "trial and error method," which is apparently the accepted one of determining starting motor characteristics and capacities, has not resulted in uniformly good experience. According to Mr. Faulkner, the manufacturers do not know the effort required to crank the engine at zero degrees Fahrenheit or there would not be so large a variation in starting motors.

Large engines, he said, frequently do not have starting motors of sufficient capacity because the design does not allow sufficient space for the installation of the proper size. When the starter installation is limited by space it is obvious that the vehicle will be troublesome throughout its life because there is no correction that can be made in the field.

A simplified form of starter rating in relation to engine sizes was attempted by the committee but it became lost in the many variables that enter the problem. Probably nothing more will be done with it.

There are indications, Mr. Faulkner believed, that many of the failures that are now blamed on the battery and starting motor really belong to the generator. He cited the case of a generator with a maximum output of 14 amp. charging a battery which falls in the SAE classification No. 1 while another vehicle has a generator with a maximum output of 12 amp. to keep a battery of SAE classification No. 9 charged. The first battery at the 20-hour rate has a capacity of 80 amp. hours. The second battery on the same rating has a capacity of 140 amp. hours. Mr. Faulkner drew from this example the conclusion that if the two trucks did the same amount of running and the battery of the first one was kept just charged by the generator that the second one would never be more than two-thirds charged.

NOW if the second engine has a larger main and connecting rod bearing surface and requires 20 per cent more torque than the first one, which would be the reason for using the larger battery, this battery would become discharged, making the same number of starts as the other truck—not on account of insufficient battery size but due to the inability of the generator to replace the energy used.

One generator shows a drop in output from 18 amp. cold to 12 amp. hot for a loss of one-third of its total output. This is adjudged to be faulty design in Mr. Faulkner's paper, but the paper continued with the idea that all of the fault is not in the generator design but that some sizable portion is in the installation of the generator.

Mr. Faulkner suggested that some thought be given to deflecting manifold heat from the generator and to better generator cooling. Many cases of failure of third brush regulated generators have been corrected by installing voltage regulation.

Continuing on into distributors, coils and condensers Mr. Faulkner's report accused truck manufacturers of failing to keep the ignition system up with the higher compression parade. Inadequacy of these parts is particularly apparent in the medium and light duty fields where the engine speeds are high and the compression ratios are increasing.

FROM the maintenance standpoint of the engine, he maintained the ignition equipment is causing the most trouble due to poorly constructed parts.

In returning to the factors of ignition equipment over which vehicle manufacturers exercise control, Mr. Faulkner stated that the coils that are furnished as standard equipment frequently short on capacity or are so poorly made that they cut out at high speeds. Condensers for the most part are of low capacity and are of so poor a quality that they rapidly break down while distributor caps develop heat cracks and shorts and the light breaker points rapidly burn away.

In considering the failures of these parts, Mr. Faulkner asserted, it must be considered that they usually result in road breakdowns which are expensive and cause serious interruptions in service.

The committee is making an analysis of condenser and distributor specifications but from the information at hand it appears that some time is going to be required to unravel the inconsistencies they contain, so nothing of a definite nature was available at the time of reading.

Chevrolet Line

(CONTINUED FROM PAGE 41)

and for greater strength. In the 1½-ton truck, a stop is provided in the front spring hanger, to prevent the axle from moving forward in case of spring breakage back of the axle. The rear hanger has been increased in size and strength.

AUXILIARY springs of greater capacity are available for the 1½-ton truck. They now consist of eight leaves instead of five.

The steering tie-rod of the 1½-ton truck has been made more rigid through the use of one-inch seamless steel tubing in place of the ¾-in. solid rod heretofore used. The ball sockets, which connect the ends of the tie-rod and the steering arms, are provided with an automatic adjusting wedge.

In the rear axle, changes include the use of a larger capacity roller bearing at the rear end of the pinion shaft and the increase of the pinion shaft diameter. In the 1½-ton truck changes have been made in the torque tube and in the jack shaft for greater strength and better lubrication. Four heavy ribs are cast in the torque tube flange between the bolts of the differential carrier, extending the full length of the casting, which reinforces the torque tube at the pinion end.

The sedan delivery on the New Standard chassis has a Fisher body, with the same size and appearance as the Standard sedan, including the same refinements. The load space is 51 in. long, 52¾ in. wide and 40⅝ in. high.

REASON ENOUGH

"EXTRA TON EACH TRIP .. FOUR GALLONS LESS GASOLINE PER DAY"

for ALUMINUM BODIES

OTTO PITSCHMAN
Hauling Contractor
129 Fancourt St.
PITTSBURGH, PENNA.

January 5th,

Mr. A. C. Runette,
The Aluminum Company of America,
Gulf Building,
Pittsburgh, Pa.

Dear Sir:

Recently you asked for our opinion of aluminum as compared with steel for use on our trucks as "Coal Bodies." Here it is; We haul approximately a ton of coal extra when we use an aluminum body and use four gallons of gasoline less per day.

Trusting that this information will be of value to you, I am,

Yours very truly,
Otto Pitschman
Wfm

but we wanted more facts

So we phoned Mr. Pitschman. And here's what he told us: "We don't keep a record of the number of trips our trucks are making, but I do know this: At the end of each month when I figure up my bills for gasoline, each truck equipped with an Aluminum body has consumed four gallons less per day."

There's something even more important than the statement he made. His tone of voice spelled, SATISFACTION — 100%.

It is this enthusiasm of users that is building more and more Aluminum into truck bodies and tanks. Some of them think about the greater pay load and fewer trips. Others think about the lower operating costs, for gasoline, for tires, for upkeep. But they all reach the same conclusion—*Aluminum Bodies Save Money.*

May we help your builder figure on your next truck? Ask for book: "Alcoa Aluminum for Truck Bodies." Address, Aluminum Company of America, 1839 Gulf Bldg., Pittsburgh, Pa.

ALCOA

ALCOA · ALUMINUM

Driver Selection Standards

(CONTINUED FROM PAGE 16)

consulted as to his opinion of a helper who may be relieving him at the wheel during slow seasons.

THE department itself reorganized its approach to the whole problem of safety, supervision, salaries, with a complete change of front with reference to the entire matter of accident causation. Safety became a watchword. Rules were established. Contests, meetings, and other special promotional methods were resorted to with amazing results.

Our first step, in this respect, was to establish rules of conduct. Accidents were classified into two groups—Avoidable and Unavoidable. A Macy Avoidable accident is considered as one wherein a driver could have exercised keen judgment, and despite the poor judgment on the part of another driver, avoided an accident. The term "Avoidable" is used advisely in preference to "Fault." Very often a driver will consider an accident not his fault, but he can be shown that it was avoidable by him, had he exercised keen anticipation at the time of the accident.

Some of our avoidable accidents are:

1. Accidents at intersections.

A Macy driver has no right of way. The right of way in any intersection is mythical.

2. Failing to stop.

A capable driver must, at all times, follow another car at a speed regulated to road surface conditions and even anticipate poor judgment on the part of the driver ahead.

3. Passing too close.

A cut off of another car is invariably the result of poor judgment as to speed, distance to be traveled, or the position of an approaching car, just prior to overtaking.

4. Hit in front while making a left turn.

The creation of an accident situation on this type of maneuver, rests entirely in the hands of the man making the left turn, as he is traveling contrary to the natural flow of traffic.

5. Hit immovable objects.

6. Backing up.

With or without a guiding helper, one requires a little more caution.

Some of our unavoidable accidents are:

1. Mechanical defects proven (a very small percentage).

2. Alleged accidents.

We believe in the principle that all drivers tell the truth, and if a man

denies any knowledge of an accident, and the claimant has no witnesses, we accept our driver's statement as 100% truthful.

3. Truck damaged while parked.

Strict adherence to these classifications is vitally important in promoting safety.

WE next established a salary review board whose function is to pass on promotions and salary increases by investigating a man's driving record. Increases may be granted every six months, if there is a clear record. If a driver has an accident, however, within eight months prior to the date of his increase, it is voted down causing him to miss two salary review periods.

Another step in our safety program is a series of lectures held every six weeks and which take the form of a breakfast meeting—at Macy's expense. This is done on the principle that men will listen on a full stomach. Everything relative to safety is discussed at these meetings, and short talks are given by the delivery superintendent or by safety officials, and police. General company rules are also talked over, as well as certain accidents that may have occurred—the reason and avoidance of same. Talks by police officials are usually on certain aspects of accidents or on certain law violations which frequently result in accidents.

A five-year club has been established which now has 45 members, who have not had accidents for five years. An accident automatically puts a driver on one year probation. If his record remains clean for one year he is reinstated in the club. Five year club men are given buttons of distinction. In an effort to do something for all the men we conduct an annual no accident contest between sub-stations. The winning team is given an outing. The honor-roll board was devised for permanent display for all to see, and has names of men who have not had accidents for as long as 11 years.

THE general safety program is being pushed, and in an effort to increase interest in safety among the men, a new contest has been devised for promotion in February. This will be a contest with first, second, and third money prizes. Ten typical accidents of the past two years will be presented to the contestants, together with the actual statements of the men who had them. One or two leading questions will be given with each statement, to help the contestants diagnose the accidents. Those who submit the best analysis as to the cause of the accidents will be awarded prizes.

All these contests, breakfast sessions, outings, etc., are what we call our "post graduate" stage in the safety program.

That our efforts in promoting safety have been rewarded is proved in the following figures on accidents, for several years. During a period of 10 months in 1926 Macy drivers operating about 250 trucks had a total of 574 accidents, in which claims were made. In 1927 Macy operated 299 trucks, a total of 2,752,096 miles, and had 512 accidents, or 1.7 accidents per truck, or one accident in every 5,400 miles. In 1932, however, Macy operated 420 trucks, 3,267,649 miles, and had 153 accidents, or .36 accidents per truck, or 21,300 miles per accident. And for the first 10 months of 1934 Macy operated over 400 trucks, more than 3,000,000 miles, and had 78 accidents, or 63.6 per cent accident reduction over the same period in 1926. We are now averaging one accident in every 39,000 miles, notwithstanding an increase in the number of drivers and trucks, as against one accident in 5,000 miles in 1926.

Our accident liability premiums have been reduced 54% per cent per truck since 1926.

Safe Drivers Are 'Settled' at 35

(CONTINUED FROM PAGE 19)

Tires are checked once a week. Low pressure in front tires makes a truck hard to steer, while too high pressure in any tire may cause a "blowout." This record and other divisions on the card, pertaining to casings and tubes, give a fairly accurate check on a routeman's driving. If the card shows frequent tire inflations for all wheels, it

is probably because the driver is speeding and using his brakes too much. Our casing and tube records, giving the date on which a casing or tube was installed and the present speedometer reading, also help to give an observation on this point. A complete record is kept from the date of purchase to the time it is discarded.

"Every tire bought is listed individually in a ledger kept especially for this purpose. The listing gives the number of the tire, and the dates on which it

Auto Report of Driver No._____

For week ending Saturday afternoon_____ 19____

		DATE	GALS.	Speedometer Reading
GASOLINE	In tank at beginning of week			
	Purchased			
	"			
	"			
	"			
	"			
	"			
	"			
	Total number of gallons			
	Less gals. in tank at end of week, also mileage			
	TOTAL—Gallons used and miles driven			
	Number of miles per Gal.			
OIL	Crank Case Drained		QTS.	
	Oil put in Crank Case			
	" " " "			
	" " " "			
	" " " "			
	" " " "			
	" " " "			

BATTERY TESTED	DATE	Speedometer Reading
CAR WASHED		
CHASSIS LUBRICATED		
DIFFERENTIAL LUBRICATED		
TIRES INFLATED		
" "		
" "		

	MAKE	SERIAL NO.	DATE Put On	DATE Taken Off	Speedometer Reading
CASING RECORD					
TUBE RECORD					

REPAIRS	$
"	$
"	$
PARTS	$
"	$
"	$

VALVES GROUND AND CARBON REMOVED AT _____ MILES.

REMARKS:

*Signed by*_____ *DRIVER*

The driver's weekly report gives a comprehensive record of the condition of the truck. Chief emphasis is on oil, gas and tiers from which can be learned the general condition of the vehicle

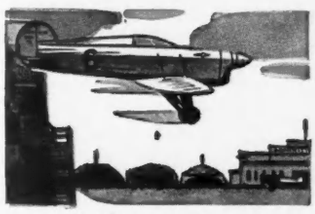
was installed and taken off. It also tells on which truck it is being used, and what particular wheel. When it is taken out of service, a notation is made in a space labeled 'remarks'. This space is also used to tell if the tire is now being used or if some sort of adjustment has been made on it."

Two interesting divisions on the card give information on what repairs have been made and parts replaced. These particular divisions show whether or not there is a permanent defect leading to repairs or parts replacement, or if the driver commits errors repeatedly.

OTHER important safety angles in which drivers are trained concern certain city ordinances which are frequently broken by truck drivers. Every routeman is obligated to see that the brakes and lights on his truck are tested every 60 days, as required by state law. The windshield of every truck must be washed daily. Thus the driver has an unobstructed vision at all times, helping to decrease accident hazards. Another point stressed is strict observance of the city right-of-way rule. Drivers must stop at an intersection no matter whether they have the right of way or not. This is a safety measure as well as a good-will builder.

"It has been six years since we had a serious accident, and that one was not our driver's fault," Kay said. "About three years ago, one of our trucks was involved in an accident in which there was no injury, and the truck was only slightly damaged. We feel that our training is effective because the company's accident record is not only excellent but the drivers have maintained a similar record with their own cars.

Differences of opinion on almost every subject under the sun—but only one world-opinion about spark plugs. Entering their 25th year, Champion Spark Plugs outsell all others all around the world.



CLEVELAND—*Lee Miles, piloting a Champion equipped M&A Special, turned in the outstanding performance of the National Air Races by winning six events, placing up with the leaders in three others and capturing the L. W. Greve Trophy. Convincing proof that champions use Champions.*

FRANCE—*A. Varzi used Champions in his Alfa-Romeo to win the Grand Prix of Nice, a thrilling race through the streets, demanding maximum engine performance and unusual driving skill. P. Etancelin in a Maserati was second and Count Trossi was third. All used Champions.*

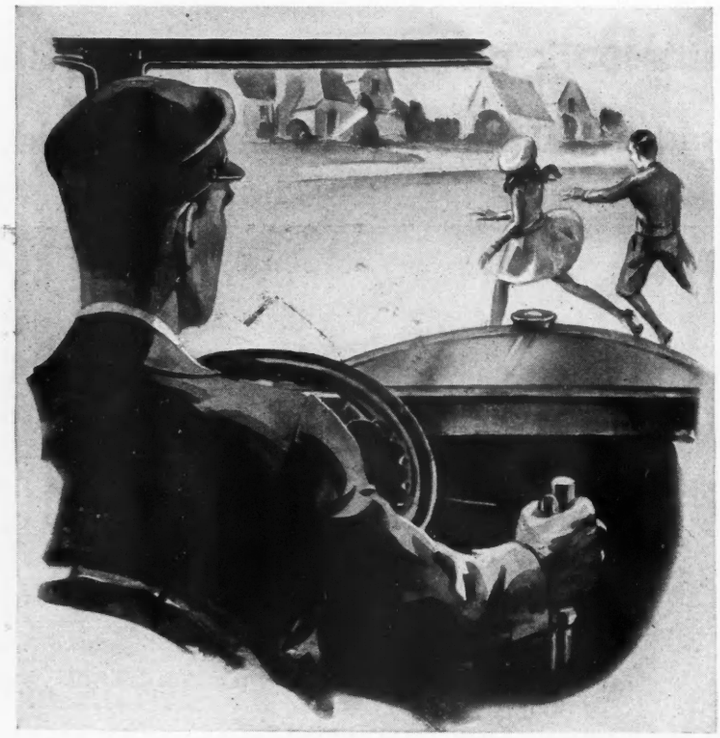
ENGLAND—*F. W. Dixon won England's premier racing event, the Brooklands 500 Mile Race, in a heavy downpour that called for superb driving and the highest engine performance and stamina. His Riley was Champion equipped, as was the Riley that E. McClure and A. Von der Becke drove to second place.*

PHILADELPHIA—*In a year filled with record breaking outboard events practically every major race was won with Champion Spark Plugs. For example, in the N. O. A. championships, Champions won every race in all classes and divisions, setting four new world's records.*

KEEP ENGINES YOUNG • TEST AND CHANGE SPARK PLUGS AT REGULAR INTERVALS

NRA CODE APEM 34-01

WERE YOU BLAMED FOR ANY



OF THE

36,000 Deaths

CAUSED BY AUTOMOBILE ACCIDENTS IN 1934

?

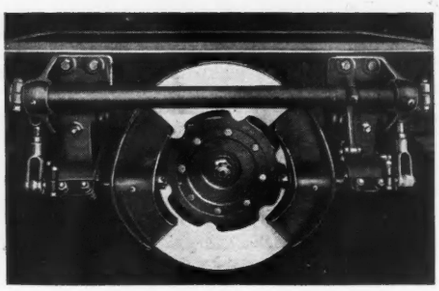
THE Tru·Stop Emergency Brake

WITH ITS 300 TO 1 LEVERAGE

will put you on the safe side!

● As a fleet operator you have three distinct responsibilities: First, service to your customers; second, the economical operation and upkeep of your equipment; third, *your responsibility to the public!*

If you don't live up to the last one you cannot live up to the first two, therefore, your business is bound to be affected.



Tru-Stop Emergency Brakes will put you on the safe side. There is simply no substitute for good brakes. We believe that Tru-Stop Emergency Brakes *are* the best brakes available.

They have an over-margin of power—a leverage of 300 to 1—more efficiency than is really needed. They are made with either single or double shoes. They are easy to adjust. They are easy to replace.

The new laws of the various States set definite standards for brake performance. Tru-Stop Emergency Brakes more than comply with the performance requirements that are stipulated.

AMERICAN CABLE COMPANY, INCORPORATED
Automotive Division
An Associate Company of the American Chain Co., Inc.
Bridgeport, Conn.
Manufacturers of the famous
WEED TIRE CHAINS

TRU·STOP EMERGENCY BRAKE

5th Consecutive Year . . . Users of

Johns-Manville

BRAKE LININGS

have won Bus Transportation Awards

1934
Gold Award
presented to United Electric Railways Co., Providence, R. I.

No mere coincidence, this successive winning of prized Bus Transportation Awards by users of J-M Brake Linings. Many of America's largest, most efficient operators have learned to depend upon J-M Brake Linings for the smooth and trouble-free braking that is indispensable to safety, regularity of schedules, economy of maintenance.

Are you dissatisfied with brake performance? Then accept the coöperation of our engineers. No obligation and we may be able to help you build up mileage and reduce maintenance.

For QUICK ACTION *use* DITZCO ENAMELS

SPEED is essential in finishing commercial vehicles and the fast drying qualities of Ditzco Enamels help to get out the jobs on time.

There are two types, both having long lasting qualities, true color and ease of application. High natural luster with great covering capacity, they provide a hard, durable finish that does not easily scratch or mar.

Ideal for the low cost one coat jobs on trucks, buses, vans or panel delivery, and their quality makes them available for high grade fleet work.

May be applied over wood, metal or old finishes. A wide range of colors.

DITZLER COLOR COMPANY
8000 W. Chicago Blvd., Detroit, Michigan

DITZLER

DITZCO ENAMEL
For Spraying or Brushing

DITZCO ENAMEL QUICK SET
For Spraying Only

1934 • Led all makes in percentage of Sales Increase!

1935 • New Model Low Priced White offers still greater value!

New Style
New Performance
Still Greater Economy

● White Truck registrations in 1934 increased nearly 200% over 1933! The largest gain in the truck industry —and not even remotely approached by any other maker. The average for the industry was about *one third* of White's gain!

White's outstanding success was due mainly to the new 700 series low priced models at $1185 (Chassis at factory). These models brought White quality features to the low price field for the first time. They offered operators the most modern engineering advances — guaranteeing performance, economy and earning power never before available at so low a price.

Before you buy any truck see these new Whites at your local Dealer's or White Branch—or write for full information to The White Motor Company, Cleveland.

Among the many new 1935 features which give still greater performance, economy and long life are:

MECHANICAL

- Improved hydraulic brakes
- Longer life engine
- Disc wheels at no extra charge
- Weather proof booster unit
- Insulated cab roof
- Larger cowl ventilator

APPEARANCE

- Attractive radiator grille
- Bullet type headlights
- New horizontal louvre design
- New type horn
- Standard finish—jade green with tangerine striping

THE NEW White AT $1185

8,000 TO 13,000 LBS. GROSS — **CHASSIS AT FACTORY**

WORLD'S LOWEST PRICES

CHEVROLET

AGAIN in 1934, the insistent demand for Chevrolet products has made Chevrolet *the world's largest builder of trucks* as well as of passenger cars. And truck buyers who want to save money will find that these are not only *the world's lowest-priced* trucks, but that they are also very economical to operate and maintain, due to the excellent quality which Chevrolet builds into them. They are big—rugged—dependable trucks. They are powered by *six-cylinder valve-in-head* engines which use very little gas and oil. And they are extremely long-lived . . . built to do their job and do it faithfully over a long period of years. Buy a Chevrolet Truck and you buy fine, dependable, economical haulage service—*at the world's lowest price!*

CHEVROLET MOTOR COMPANY, DETROIT, MICHIGAN

Compare Chevrolet's low delivered prices and easy G. M. A. C. terms. A General Motors Value

Sedan Delivery, $515
(107" Wheelbase)

*1½-Ton Stake, $660
(131" Wheelbase)

Half-Ton Panel, $560
(112" Wheelbase)

*1½-Ton Stake, $720
(157" Wheelbase)

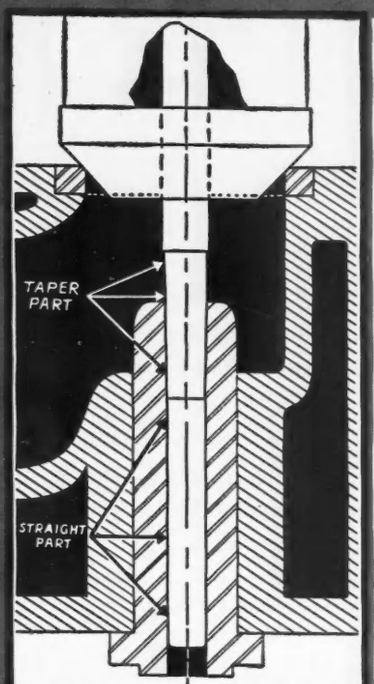
*1½-Ton Chassis, $485
(131" Wheelbase)

*1½-Ton Chassis and Cab, $605
(157" Wheelbase)

*Above are list prices of commercial cars f.o.b. at Flint, Michigan. Special equipment extra. *Dual wheels and tires $20 extra. Prices subject to change without notice.*

CHEVROLET TRUCKS

Only SIOUX has these important advantages in Valve Seat Grinding Equipment



By selecting the largest Sioux Tapered Pilot which will enter the valve guide, the straight part aligns the pilot correctly with the center line of the valve guide, thus assuring perfect accuracy.

Precision work and *fast* work is made as easy as A-B-C for any mechanic with this unbeatable combination—SIOUX Tapered Pilots and the SIOUX Dual Action Valve Seat Grinder.

SIOUX TAPERED PILOTS

are patented and exclusive! The SIOUX method of tapering only the upper portion (instead of the whole length) offers the only positive way to prevent misalignment and inaccurate grinding. All the mechanic has to do is to use the largest Sioux Tapered Pilot which will enter the valve guide. The straight part of the pilot will then hold the pilot correctly with the center line of the valve guide, thus assuring the valve seat being ground in proper alignment. This Sioux Pilot also acts as a plug gauge for checking wear in valve guide, indicating when replacements are advisable for best results.

No matter how good a grinder may be, it is necessary to have a proper-fitting pilot that positively holds the grinder in perfect alignment with the center line of the valve guide. That's exactly what the patented Sioux Tapered Pilot does!

SIOUX DUAL ACTION VALVE SEAT GRINDER

offers almost unbelievable speed, simplicity and dependability . . . even on the hardest valve seats. Accurate within .0005 (½ thousandth). No delicate adjustments. Its dual action produces a mirror-like finish. Built up to traditional SIOUX standards of quality and stamina. Priced within the reach of every shop!

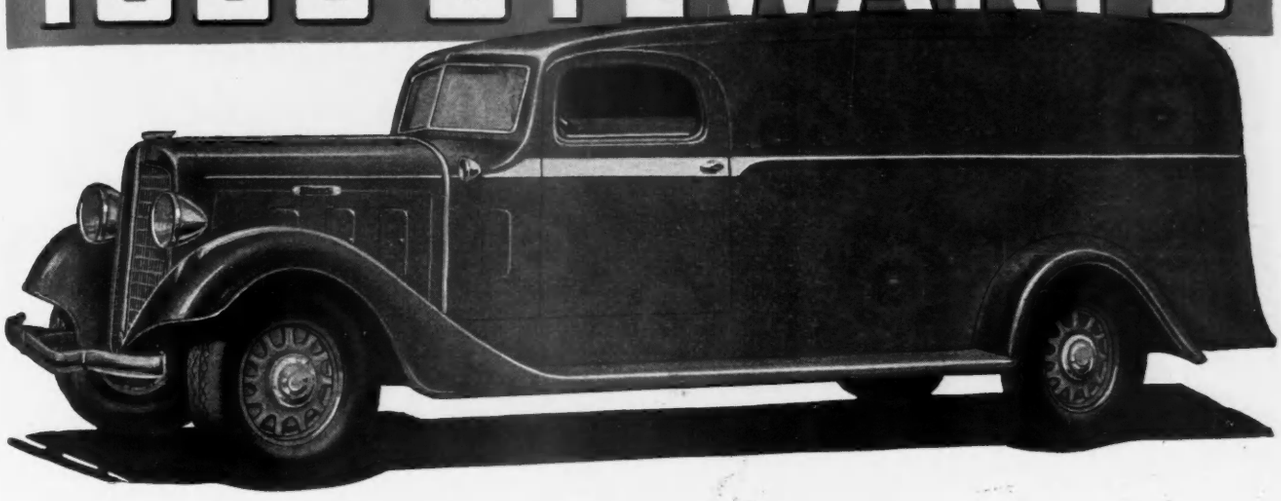
Use SIOUX Hardened Valve Seat Rings for BEST RESULTS

Your Jobber Sells Them!

ALBERTSON & CO. INC.
SIOUX CITY, IOWA, U.S.A.

SIOUX STANDARD THE WORLD OVER

1935 STEWARTS

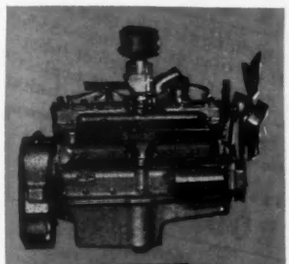


EMBODY IMPROVEMENTS THAT PLACE THEM FAR AHEAD OF THE FIELD

Stewart MOTOR TRUCKS

The new and better Stewarts bring to truckdom a new conception of value—longer life—greater gasoline economy—greater freedom from repair bills—infinitely greater dependability. Built by an *exclusive* truck maker with a 23 year record of success, the 1935 Stewarts are honest trucks, honestly rated, honestly priced.

Stewart MOTOR TRUCKS



A GENUINE TRUCK ENGINE

Patented Ricardo cylinder head — molybdenum alloy cylinder block and manifolds—a real full pressure oiling system—drilled connecting rods—valve inserts—large water jackets for even cooling—7 large main bearings—timing gears.

N.B. Engine above for Stewart popular priced models.

The 1935 Stewarts are equipped with sturdy, genuine truck engines, designed and built exclusively for hard *truck* service and long life—ahead of the field in modern design.

Built To Last Many Years

Stewart owners do not figure depreciation on a 2 or 3 year basis. They know by experience that the average life of a Stewart is many years—often having given 8, 10 and 12 years of constant service with minimum repair bills.

Check through the new Stewart features before you buy. Ask your dealer to let you make a road test with one of the smoother, quieter, more attractive Stewarts for 1935. Stewart performance will speak for itself. Catalog gladly sent on request.

STEWART MOTOR CORPORATION
BUFFALO, N. Y.

MODELS

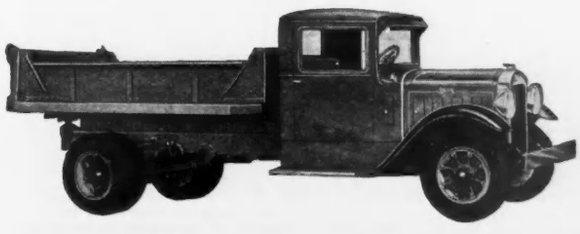
6 CYLINDER

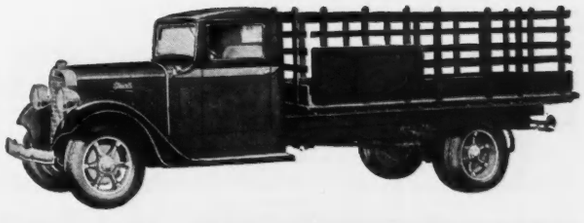
1 Ton	6 Cyl.
1½ Ton	6 Cyl.
2 Ton	6 Cyl.
2½ Ton	6 Cyl.
3 Ton	6 Cyl.
3¼ Ton	6 Cyl.
3½-5 Ton	6 Cyl.
5-6 Ton	6 Cyl.
7-8 Ton	6 Cyl.

8 CYLINDER

3¼ Ton	8 Cyl.
3½-5 Ton	8 Cyl.

Quality Trucks moderately priced.





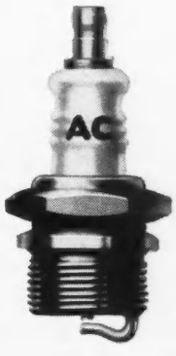
STEWART TRUCKS HAVE WON BY COSTING LESS TO RUN

Investigate FIRST *this* AC HEAVY-DUTY TRIO

The AC Spark Plug Cleaning Machine and AC Heat Range Chart *are engineered from long experience* to assure users of AC Long Life Spark Plugs of 100 per cent spark plug performance. With these three working for you, you can rest assured that *none* of these common operating difficulties will be caused by your spark plugs.

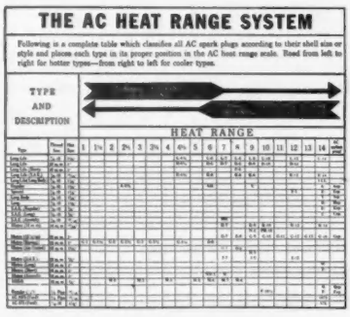
Here are the Reasons:

AC LONG LIFE SPARK PLUGS—are built expressly for heavy service. Each type has an unusually wide heat range, as well as many exclusive, patented features. Chief among these are (1) One-Piece, Heat-Sealed, compression-type construction; (2) welded side electrode for perfect conductivity; (3) Isovolt electrode material for longer life; (4) unglazed insulator tip for minimum encrusting, and (5) extra heavy insulator for greater durability. These time-tested AC Spark Plugs sell at the lowest price of any factory-approved plugs.



THE AC HEAT RANGE SYSTEM

Following is a complete table which classifies all AC spark plugs according to their shell size or style and places each type in its proper position in the AC heat range scale. Read from left to right for hotter types—from right to left for cooler types.



AC HEAT RANGE CHART—Wherever actual operation of your equipment reveals the fact that the type of spark plug recommended in the AC Specification Chart burns out electrodes too rapidly or fouls too quickly, the AC Heat Range Chart accurately indicates the type of AC Long Life Spark Plug that will remedy either condition.

AC SPARK PLUG CLEANER—prevents the gas waste, hard starting, and loss of power caused by carbon, soot, and Oxide Coating—by quickly, cheaply, and thoroughly removing them from spark plugs.

No matter what type of service your vehicles are in, your spark plug satisfaction will be complete—if you use this AC Trio.

NRA WE DO OUR PART

AC SPARK PLUG COMPANY

Flint, Michigan — St. Catharines, Ontario

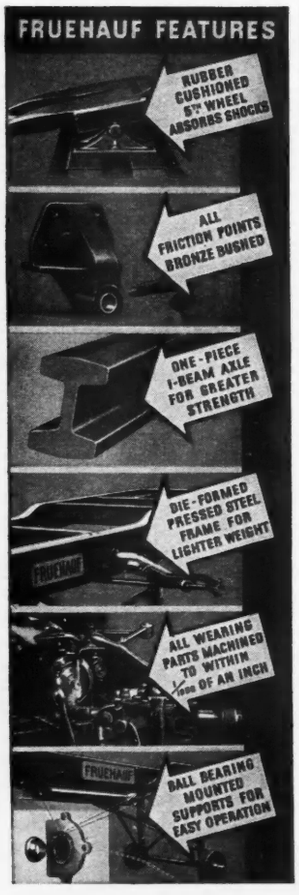
AC THE QUALITY SPARK PLUG

PLUGS FOR THE CANADIAN MARKET MADE AT ST. CATHARINES, ONTARIO

Consider THIS COMPLETE TRAILER

THE round front, smooth-sided Type "B" metal body shown here is one of the most popular Fruehauf bodies. It may be had with closed or open top, full length rear doors or tail gate with double doors above. Doors on curb side and quarter-inch ply-wood interior lining are standard.

A TRAILER is not a chassis. Neither is it a body. It is a chassis and body—A COMPLETE UNIT —ready to do a certain haulage job!



IF BEST RESULTS are to be had with your Trailer, chassis and body must fit! They must be designed together, engineered to each other and to the job which is to be done. When you buy a Trailer on that basis, you buy "Engineered Transportation"—not just more haulage equipment. The building of *complete* Trailers, the furnishing of transportation units—that's our business. And that's why Fruehauf bodies are designed and built by Fruehauf, right at the Fruehauf factory.

No limitations here. No hide-bound policies. No need to build bodies hit-or-miss. For Fruehauf's Body Division, recently expanded, is one of the largest in the industry. And, too, a group of engineers are constantly working out ways to create even more value in Fruehauf bodies. In short facility is here for producing the type of bodies necessary to obtain peak performance from Fruehauf chassis. Let Fruehauf supply your next Trailer—chassis *and* body—*engineered from bearings to roof* as one complete unit to do your haulage job the best it can be done.

• • •

On its back, a horse can carry a load of only a few hundred pounds. But—hitched to a wagon, the same horse can *pull* a load of a ton or more. And, with the modern motor truck, or mechanical horse the rule still applies. A 1½-ton truck used as a tractor, for instance, can easily handle a 6-ton load on a Fruehauf Semi-Trailer.

And you are FREE to choose your own

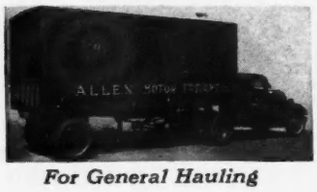
POWER!

WE don't manufacture motor trucks. When you buy a Fruehauf Trailer, you are not limited to any one make of power unit. You are free to choose, from the scores of modern trucks available, the make best suited to your particular requirements.

JUST OFF the PRESS

"Good Business"—a 32-page, illustrated book for every man interested in this business of motor transportation. Your copy will be sent immediately on request.

FRUEHAUF TRAILER CO.
10985 HARPER AVENUE, DETROIT, MICHIGAN
"ENGINEERED TRANSPORTATION"



For General Hauling

Streamlined Deluxe Unit

Fruehauf Gas and Oil Unit

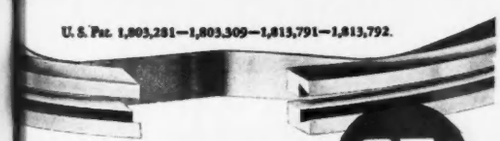
New Fruehauf Dump Trailer

"You need never have a" RING FAILURE

if you use PEDRICKS *and the* PEDRICK TECHNICAL SERVICE MANUAL!

HYDRAULIC
Oil and Compression Rings

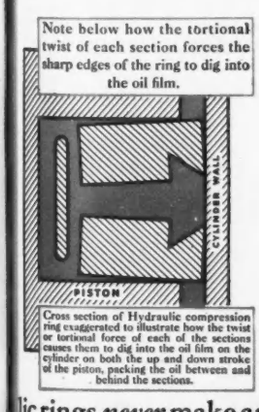
U. S. Pat. 1,803,281—1,803,309—1,813,791—1,813,792.



85¢

THE FINEST PISTON RING INSTALLATION AT ANY PRICE

PEDRICK Hydraulic piston rings have two cast iron sections whose combined width is substantially less than the width of the piston groove. This *underwidth* feature is patented and is essential to obtain the sideways, check-valve effect which produces Hydraulic Action.



Note below how the tortional twist of each section forces the sharp edges of the ring to dig into the oil film.

Cross section of Hydraulic compression ring exaggerated to illustrate how the twist or tortional force of each of the sections causes them to dig into the oil film on the cylinder on both the up and down stroke of the piston, packing the oil between and behind the sections.

Because they rely upon Hydraulic Action of the lubricating oil instead of high wall pressure, Hydraulic rings *never* make an engine sluggish. Hydraulic piston ring installation will give new car efficiency even in worn engines without renewing the pistons or refinishing the cylinders.

COMPRESSION
Rings

25¢

The most important feature of any compression ring is its *roundness.* Due to the process of Heat-Shaping which sets all PEDRICKS to the exact, mathematical shape desired, the PEDRICK Compression ring is *round* and bears evenly against the cylinder wall to a degree impossible to obtain by any other process of manufacture.

DEEP CHANNEL
Oil Control Rings

50¢

BETTER OIL CONTROL — LESS CARBON CLOGGING — VASTLY LONGER LIFE

It's the *shape* and the *depth* of the *continuous channel,* plus the use of round drilled holes instead of elongated slots, that give the Deep Channel Oil-Control ring these definite superiorities.

The sharp scraping edges cut into the oil film on both the up and down strokes of the piston.

Wear on the face of the ring reduces the face area due to the undercut feature of the channel, compensating for loss of tension — doubling the life of the ring.

THE COMPLETE *Pedrick Line* of HEAT-SHAPED PISTON RINGS

AUTO SERVICE PISTON RINGS

39¢

No Other Piston Rings Will Give Such High Performance at So Low a Cost

Auto Service Piston Rings meet the requirements for a low price expander type piston ring.

49¢

AUTO SERVICE Piston Rings Make it Unnecessary to Recondition the Cylinder Walls in Cases of Normal Wear

Each ring is supported by a cushion inner ring of finest Swedish steel to compensate for normal cylinder wear.

TECHNICAL SERVICE

The PEDRICK Technical Service—available free to every PEDRICK user—assures the selection and proper installation of the correct types of piston rings under all conditions. **Write today for complete information.**

NRA

Wilkening Manufacturing Co.
Philadelphia

NRA

One of the New Graham High-Speed Engines

GRAHAM ADOPTS FEDERAL-MOGUL'S NEW HIGH-SPEED BEARING ALLOY

BECAUSE it so efficiently meets the high-temperature requirements of modern high-speed engines, the new cadmium-silver-copper bearing alloy developed by Federal-Mogul has been adopted as standard for the new Graham Six high-speed engines. Another factor in Graham's decision to adopt these bearings was the high precision standards observed by Federal-Mogul.

An entirely modern development to meet modern requirements, the new cadmium-silver-copper alloy overcomes the problem of contending with high heat development in 1935 engines, without entailing the use of hard crankshafts — as is necessary with some copper-lead alloys — or increased clearances, being assembled with the same clearances as babbitt bearings. It meets normal cost requirements.

Prolonged high-temperature operation has little effect on its strength and hardness. Its melting point is approximately 135 deg. higher than tin-base babbitt (S. A. E. 11), and it runs consistently cooler than babbitt bearings. It possesses higher physical properties at all operating temperatures, and gives greater protection against scoring of soft shafts.

For over 30 years, Federal-Mogul has been the source of better bearings, of expert engineering counsel and dependable service, all resulting from continuous research and development work.

●

THE FEDERAL-MOGUL LINE

Bronze-Back, Babbitt-Lined Bearings; Steel-Back, Babbitt-Lined Bearings; Dualoy (Steel-Back, Babbitt-Lined) Camshaft Bearings; Bronze Bushings and Bronze Washers; Bronze Castings; Aluminum Bronze Castings; Bronze Cored and Solid Bars; Babbitt Metals; Connecting Rod Service; Marine and Industrial Propellers.

Mogul FEDERAL

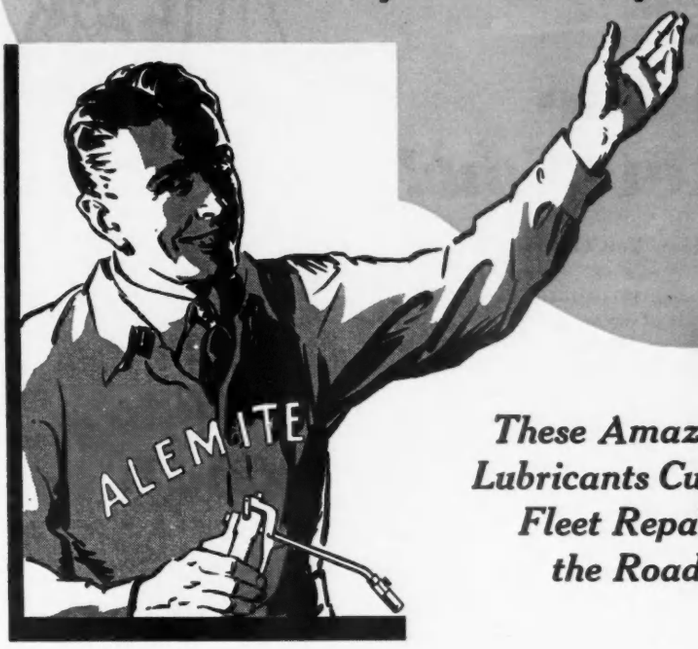
"The Only Complete Bearing Service"

FEDERAL-MOGUL CORPORATION • DETROIT, MICHIGAN

Operating Watkins Babbitting Service

ALEMITE *Announces* TEMPRITE

A Revolutionary Series of Specialized Lubricants Made by a New and Secret Process



These Amazing New Extreme-Pressure Lubricants Cut Fuel Consumption—Slash Fleet Repair Bills—Keep Trucks on the Road Hauling "Pay Load"

● To meet the demands of modern fleet owners—to supply them with lubricants to meet new-day engineering requirements—Alemite has developed Temprite Extreme-Pressure Lubricants. Lubricants that assure an extra margin of safety—fully 200% *plus-protection* for every moving part in modern trucks.

Where old-type lubricants are hopelessly inadequate due to engineering advancements that call for increased power, greater speed, increased tooth pressures on transmission and differential gears—Temprite Lubricants *meet and actually exceed* the most rigorous lubrication specifications.

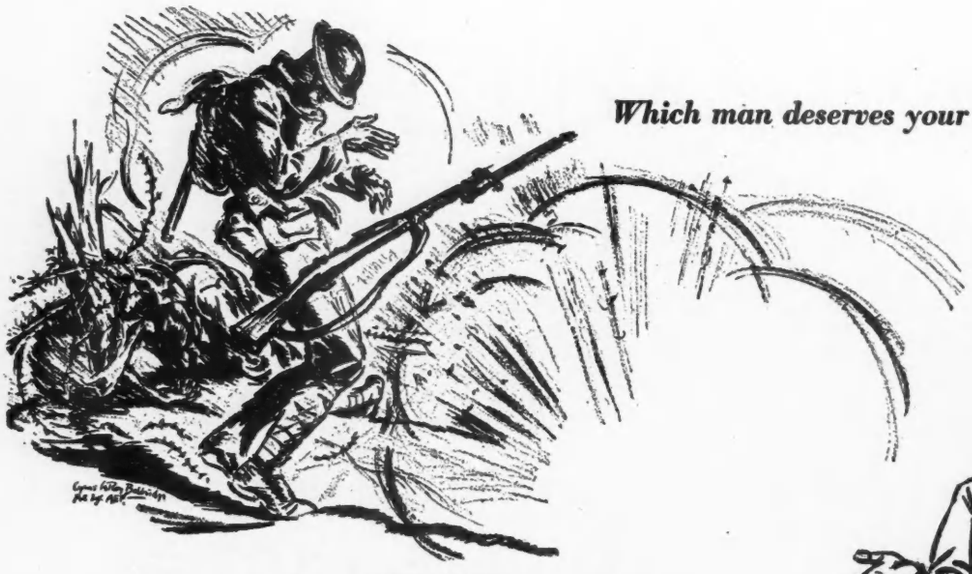
Alemite Engineers, cooperating with manufacturers, made a careful and detailed study of individual lubrication requirements—then produced Temprite Lubricants by an intricate and secret process. So that now, even under conditions of extreme heat and extreme cold, you can supply your trucks with lubricants that give a *plus-protection* totally unheard of before. You can eliminate many costly repairs, cut fuel consumption and keep your fleet at 100% operating efficiency month after month.

Get the complete details on these remarkable acid-free, non-corrosive, specialized Temprite Lubricants. Learn how you can eliminate the major cause of transmission and differential troubles—how you can give added protection to chassis, universal joint, steering gear and other vital bearing surfaces. Call your Alemite distributor today or write to: Fleet Lubrication Dept. There is no obligation.

ALEMITE CORPORATION (*Division of Stewart-Warner Corp'n.*)
1876 DIVERSEY PARKWAY CHICAGO, ILLINOIS

ALEMITE REG. U. S. PAT. OFF. **TEMPRITE** *Specialized* **LUBRICANTS**

NRA CODE



Which man deserves your tax money?

Let's Kill the Pension Racket *Now!*

You Who Pay the Bills Read This

• • •

WAR OF 1812:—Last soldier died 1905. Five widows, one remarried widow and one daughter still receiving benefits.

WAR WITH MEXICO:—Last soldier died 1929. 415 widows still receiving benefits.

CIVIL WAR:—$7,698,000,000 paid to date, with approximately $98,000,000 present annual outlay. *All veterans and war widows entitled to benefits.*

SPANISH AMERICAN WAR:—$811,819,000 expended to date. Annual outlay more than $110,000,000. *Virtually all veterans and war widows entitled to benefits.*

WORLD WAR:—Record of constant liberalization. Number of beneficiaries increased more than 100 per cent from 1930 to 1932. Total mobilized in the war, 4,300,000 men. *Already—only 16 years after the Peace —over 1,900,000 claims have been filed.*

Here's How You Can Help Stop It!

• • •

The American Veterans Association, consisting solely of veterans, is fighting to protect and defend the rights of *the truly war disabled* and *the dependents of the war dead* against political exploitation.

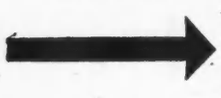
We believe that Federal compensation in the form of war pensions should be restricted to:

1. ***Those wounded in combat.***
2. ***Those suffering from injury or disease incurred, in fact, in line of duty.***
3. ***The dependents of those killed in action and of those who died of wounds, injury or disease incurred, in fact, in line of duty.***

If you believe in pension reform based on the *three-point plan* of the American Veterans Association, here is your opportunity to register your vote. Remember, you pay the taxes that pay the pension bill. Unless you are on the alert and prevent a repetition of the pension rackets of the past, your great, great, great, grandchildren will be paying pensions for the World War in the year 2040. Fill in this coupon today and help to end the pension racket.

"Justice to the WAR WOUNDED • Justice to the WAR DEAD • Justice to the AMERICAN PEOPLE"

MAIL THE COUPON



Citizen's Vote

AMERICAN VETERANS ASSOCIATION, INC.
420 Lexington Avenue, New York City

Please record my vote in favor of the A. V. A. 3-Point Pension Program, and mail me, without obligation, your booklet "Let's Kill The Pension Racket."

Name.....

Street.....

Post Office..... **State**.....

Veteran's Vote

AMERICAN VETERANS ASSOCIATION, INC.
420 Lexington Avenue, New York City

As a veteran, I approve and vote for the A. V. A. 3-Point Pension Program. Please enter me as a member and mail me your booklet without cost. I enclose $2 membership dues.

Name.....

Street.....

Post Office..... **State**.....

Rank..... **Branch of Service**.....

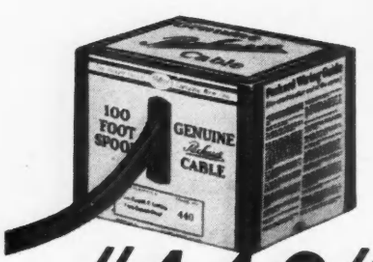
War Service.....

This advertisement is made possible by a special fund raised in memory of men killed in action

LEADERSHIP

In every line of business there is always a leader—always one company that ranks above all others in achievements, experience and quality of product. This is especially true in the automotive cable field. Packard, with thirty years' experience, is the oldest and largest maker of automotive cable and the largest supplier of original equipment. Packard introduced cable in wrapped coils and on 100-foot spools. Packard pioneered with cable merchandiser assortments, lacquered cable, ignition cable sets, and synthetic rubber-covered high-tension cable (FOUR-FORTY). The introduction of Packard FOUR-FORTY is proof of Packard's pledge always to improve its product. For Packard is not content to rest upon any past achievements. Packard is jealous of its enviable position and determined to continue its leadership—to the end that Packard will always be the one best source of supply for automotive manufacturers and the trade.

PACKARD ELECTRIC CORPORATION, WARREN, OHIO



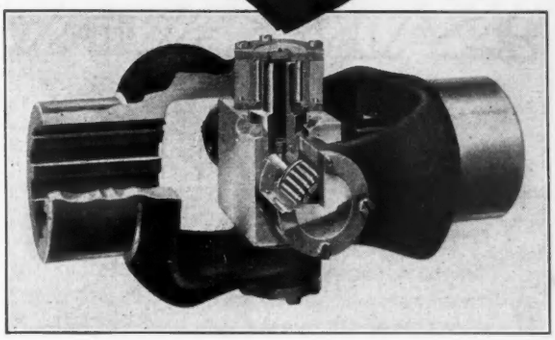
"440"

Packard
REG. U. S. PAT. OFF.
TRADE MARK

AUTOMOTIVE CABLE

THE STANDARD WIRING EQUIPMENT OF THE AUTOMOTIVE INDUSTRY

30 Years of Specialization Are Embodied in this New Line of Ton-Safe . . . Roller Bearing Universal Joints



★ **In keeping with the trend toward constant improvement in automotive units, Blood-Brothers are pleased to present a complete line of heavy duty, single and double universal joints and propeller shaft assemblies of the roller or anti-friction bearing type, known as the W series.**

The design of the W series joint closely follows that of its predecessor, the Model BW, except for the incorporation of the roller type of bearing. The same yoke design is used, and basicly the center cross design is the same. The result is the incorporation of all the ruggedness and simplicity of the well-known Model BW, plus the addition of frictionless bearings, better lubricant retention, increased capacity and smaller rotating diameter.

Investigate **Blood-Brothers Ton-Safe Universal Joints, and ask us to estimate on your requirements.**

BLOOD-BROTHERS MACHINE COMPANY

Allegan, Michigan.

SEE RIGHT ON THE JOB

How to renew crankcase drainings for 1½-4 cents

Seeing tests made with their own crankcase drainings —right in their own shops, is proving to fleet owners— large users of oil everywhere the vital importance and great money saving possibilities of the Skinner Stream-Line Oil Filter.

It makes it practical to renew 94 to 98 per cent of used oil at a cost of 1½ to 4 cents per gallon.

Mail the coupon—there is no obligation, but if you decide to buy, Skinner Stream-Line Filters come in all sizes—some of them cost no more than a new typewriter.

Actual photograph of 7½ pounds of solids, taken from a drum of crankcase drainings. All of the grit, carbon, silica, and water is removed — every particle more than 1/250,000ths of an inch thick.

MAIL THIS COUPON TODAY

SKINNER MOTORS, Inc., 2225 Dalzelle St., Detroit, Mich.

We want complete details on the new Stream-Line Filter

☐ Have representative call ☐ Send complete information

Name _____ *Address* _____

City _____ *State* _____

DON'T GUESS

... test tires regularly with a dependable Schrader Service Gauge.

THE simple rule of carrying and using an inexpensive Schrader Service Gauge in every truck, bus or delivery car (for that unexpected "out of town" emergency) is a sure way to get those extra thousands of tire miles. Keeping one extra in the garage as a "master gauge," is also a wise plan. Schrader Gauges are known for their Sturdiness, Dependability and Right-to-the-Pound Accuracy. No delicate mechanism to get out of order.

THREE MODELS

No. 6060 **(illustrated). Calibrated to gauge *any* pneumatic tire—from 10 to 60 lbs. in 1-pound units and from 60 to 160 lbs. in five pound units.**

No. 7188 **Same as No. 6060 but having 6-inch extension and dual footing for easy testing of dual tire pressures.**

No. 7622 **Same as No. 6060 with addition of sturdy clip for attachment to belt or pocket.**

TEST FASTER THRU DUBLCHEKS

You can test all your tires faster, easier and more regularly through Schrader Dublchek Caps.

Ask about the lower prices when ordering these products from your supplier.

A. SCHRADER'S SON — Division of SCOVILL MANUFACTURING COMPANY, INCORPORATED, Brooklyn, N. Y.

Schrader

Reg. U. S. Pat. Off.

TIRE-SAVING VALVES, CAPS AND GAUGES

BE SURE IT'S A SCHRADER—LOOK FOR THE NAME

Spicer

SALISBURY

FULL FLOATING

AXLES

Rugged—
Accessible—
Adaptable—

Bus and truck engineers keenly appreciate the many advantages of these new Salisbury Full Floating Axles—their simple design and sturdy construction, their ready adaptability to installation without large tool costs, and their high degree of service accessibility. These axles have full floating wheel end—integral type carrier—centrally confined lubrication with directional flow control . . . Write for new descriptive Bulletin No. 101.

Spicer

MANUFACTURING CORPORATION
TOLEDO, OHIO

BROWN-LIPE	SALISBURY	SPICER	PARISH
CLUTCHES and TRANSMISSIONS	FRONT and REAR AXLES	UNIVERSAL JOINTS	FRAMES READING, PA.

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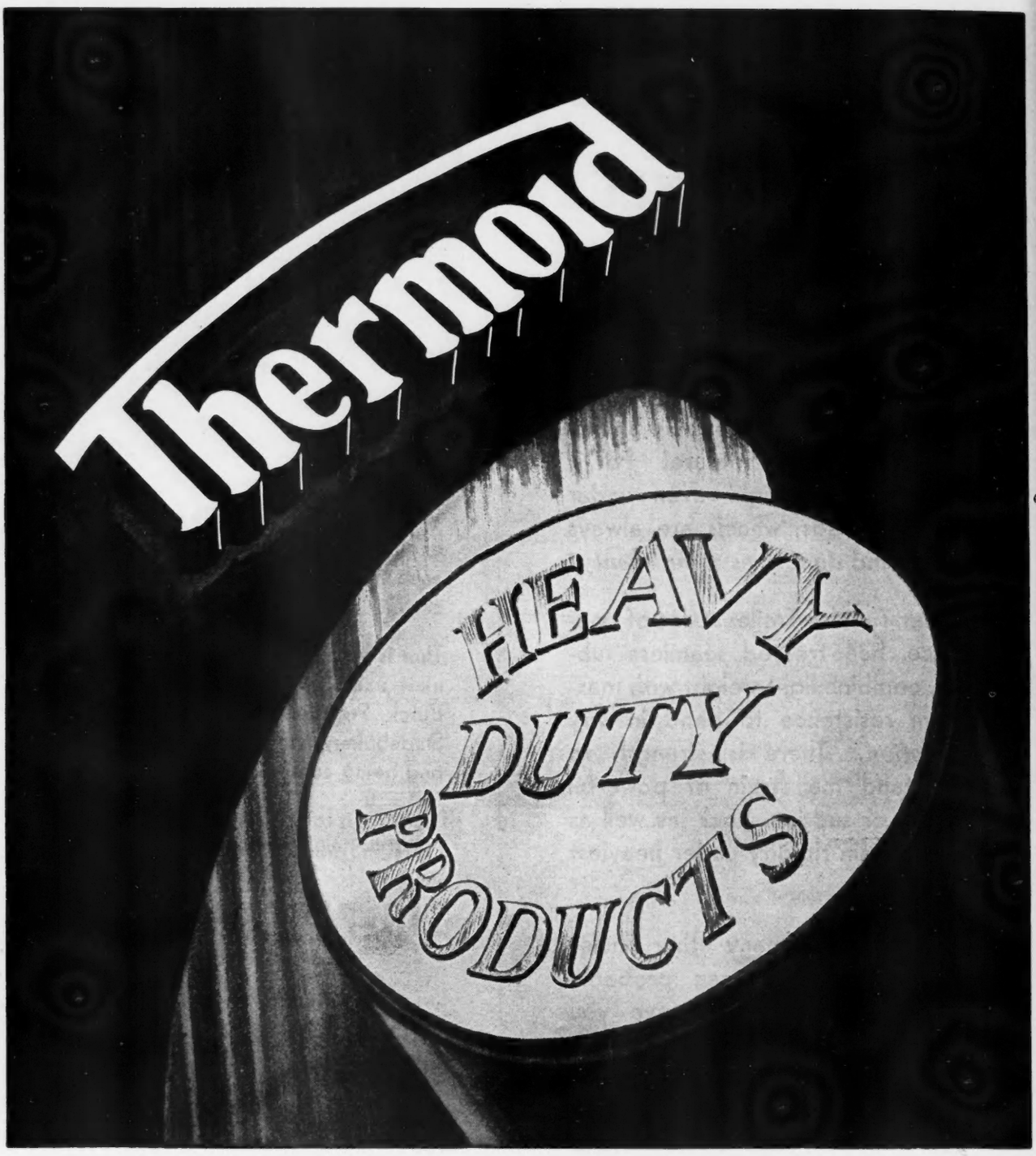

THERMOID Heavy Duty Products, in addition to rigid and constant laboratory tests, are proven and tested in the field (highway to you). America's leading bus and truck operators endorse them with actual orders. Let us refer you to these users for first hand information on their results. These important Thermoid users will gladly approve our furnishing their names.

Thermoid
Trenton, New Jersey

HEAVY DUTY BRAKE BLOCKS ★ **HEAVY DUTY F-M-L BRAKE LINING** ★ **HEAVY DUTY FAN BELTS** ★ **HEAVY DUTY CLUTCH FACINGS** ★ **HEAVY DUTY RADIATOR HOSE**